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COMMERCIAL FISHERIES REVIEW

A review of developments and news of the fishery industries prepared in the BUREAU OF COMMERCIAL FISHERIES.

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APPLICATION OF STEAMING AND VACUUM TO SHUCKING AND CLEANING SCALLOPS

By Harvey R. Bullis, Jr.* and Travis D. Love**

SUMMARY

A new method has been devised for shucking scallops and removing the viscera from the muscle by application of heat and vacuum. Heating one shell of the scallop for approximately 20 seconds loosens that shell and releases the remaining portion of the scallop. The viscera are then removed by applying a vacuum, and the muscle is loosened from the remaining shell with a second application of heat and then is chilled in ice water, drained, packaged, and frozen. The viscera, drawn into a trap tank in the vacuum line, can be digested, concentrated, and marketed as solubles or meal supplements. The shells can be sold either whole or ground.

Commercial application of the processes involved is outlined and discussed.

INTRODUCTION

In recent years, a number of large beds of calico scallops (Pecten gibbus) have been found along the southeastern and Gulf coasts of the United States. One of these beds, discovered by the U. S. Bureau of Commercial Fisheries exploratory trawler Silver Bay off Cape Canaveral, Fla., has aroused much commercial interest.

Fig. 1 - Shucking scallops from new Florida bed requires concentrated effort of crew of motor vessel Silver Bay, U. S. Bureau of Commercial Fisheries research trawler which made find. The shells are easy to open, but real know-how is needed to quickly separate viscera from meat by hand.

Among the difficulties in establishing a fishery for these scallops is the high cost of hand shucking and cleaning. Several methods for mechanical shucking therefore have been considered, and one method has been tested successfully in a pilot plant. The successful method utilizes two principles: heat and vacuum. Development of the method arose from the belief that (1) if one shell of the scallop were heated briefly, in near-boiling water, the edible muscle (also known as the meat or eye) might pull loose from that shell and (2) if a vacuum were applied to the viscera surrounding the muscle,

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the viscera might be removed, leaving the clean muscle attached to the remaining shell. The shell could then be separated by a second application of heat, freeing the edible product.

This paper presents the results of experiments designed to test these beliefs and discusses the results and their application to commercial practice. Also included is a discussion of the handling of the byproducts--viscera and shell.

EXPERIMENTAL SHUCKING

PROCEDURE: The scallops were placed by hand in a flat, shallow pan, where they were held for 20 minutes in sufficient boiling water (approximately $\frac{3}{4}$ of an inch) to cover the lower shell. The heated shell was then removed, and the scallops were placed in front of an operator who vacuumed the viscera from the muscle with a 1-inch-diameter flexible hose attached to a 2-cylinder high-vacuum pump powered by a $7\frac{1}{2}$-horsepower electric motor. Approximately 22 inches of vacuum was used. The remaining shell, still containing the muscle, was next placed in boiling water for 15 to 20 seconds. The shell and muscle were then separated, the muscle being flipped into an ice-water bath. After a few minutes of chilling, the accumulated muscles were quickly drained, packaged, and frozen.

Fig. 2 - Removing the scallop viscera by vacuum. Operator is applying vacuum to the scallop half shell. The viscera will be sucked into the hose and pulled into the cylindrical viscera trap tank. The hose leading from the other side of the trap tank is connected to the vacuum line.

RESULTS: Heating the scallops for 20 seconds in $\frac{3}{4}$ of an inch of boiling or near-boiling water effectively loosened the shell exposed to the water so that it was easily removed from the muscle by hand. Covering both shells with hot water, or applying excessive amounts of heat, loosened both shells and made vacuum removal of the viscera impossible. Even moderate exposure to heat, beyond the 20-second interval, or in water of too great a depth, loosened the top shell-muscle connection so that the muscle pulled off with the viscera and was lost in the vacuum-line trap tank. Slight variations of steaming time therefore were necessary, owing to variations in the size of the scallops, the temperature of the shell, and the time that had elapsed since the scallops were caught.

SIMULATED COMMERCIAL SHUCKING

PROCEDURE: After experimentation proved that the principles involved in the new method were correct, the next step was to determine the economic feasibility of the method. Accordingly, a series of tests was conducted to obtain figures for time consumed and yield obtained for both hand and vacuum operations so that these operations could be compared. Since facilities for rapidly heating large quantities of scallops were not available, that part of the process dependent on heat was handled manually by a shucker who removed one shell and passed the other shell with the adherent muscle and viscera to a vacuum-hose operator. A third man completed the shucking by cutting out the muscle after removal of the viscera. As a control, an expert hand shucker worked on 1-bushel samples.

RESULTS: The following results were obtained:

1. The hand shucker averaged about 0.8 of a bushel per hour.

2. The yield from hand shucking averaged 4.25 pints of muscles per bushel.

3. Viscera could be removed with a suction hose at rates varying from 4 to 5.3 bushels per hour.

4. Yield with the vacuum method was poor until the hose man gained experience. The first 8 bushels yielded an average of only 3.25 pints of muscles per bushel, and it was noted that a large number of muscles were being pulled into the tank trap. The subsequent 9 bushels yielded an average of 4.75 pints per bushel with loss of muscles down to less than 5 percent.

By use of the same method of hand shucking and vacuum cleaning, with teams of 4 and 7 men working on a mechanical line, the average shucking rate in both cases was 1 bushel per man per hour compared with 0.8 of a bushel per man per hour by hand--an increase of 20 percent. The men composing the teams were relatively inexperienced. Each team included one hose man. Yields should be somewhat higher when facilities for heating the scallops become available. In hand shucking, the muscle is cut loose, with a consequent loss of the muscle still attached to the shell, which loss ranges from 5 to 20 percent by weight. When heat is used, however, the muscle is completely detached.

BYPRODUCT TREATMENT

Viscera from the trap tank underwent enzymatic digestion when held 3 to 4 hours at 130° to 140° F. The resulting soupy liquid could be evaporated to 50-percent solids or evaporated to dryness and mixed with cereals for animal feeds. Composition of the scallop muscles and viscera was determined by proximate analysis (table 1). Additional byproducts can be obtained from the shells, which may be ground for use in poultry feed or may be used whole as a filler in concrete products. Whole shells are currently selling (1960) at approximately 3 dollars per cubic yard on the Gulf Coast.

Table 1 - Proximate Composition of Scallop Viscera and Meats (Muscles)

Sample	Protein	Oil	Ash	Moisture
	(Percent)			
Viscera	9.7	2.5	83.1	4.7
Viscera	9.5	2.6	82.7	5.2
Viscera	9.5	2.7	82.6	5.2
Edible Meats (Avg. of 2 samples)	16.2	0.8	81.4	1.6

OUTLINE OF A SUGGESTED COMMERCIAL-SCALE HEAT-VACUUM SHUCKING OPERATION

The new heat-vacuum method of shucking and cleaning scallops lends itself well to mechanization and commercial application. A suggested mechanized set up, designed around two link-chain belts, is visualized as follows:

1. The whole scallops are received on the first link chain belt, which has been provided with a raking bar or fingers so that the shells will lie flat and be spread in a single layer.

2. The shells are moved on the belt into a shallow tray of boiling (or near-boiling) water, where only the bottom valve is covered.

3. After the shells have been passed through the hot water for a sufficient interval (approximately 20 seconds), the belt runs to a rotary tumbler, where it dumps the shells.

4. The rotary tumbler should effectively separate the heated, empty shells from the shells containing the scallop meats.

5. A chain belt, leading from the tumbler, conveys the opened shells to a group of men handling vacuum viscera extractors.

6. After the viscera have been removed, the shells are placed on a second link chain belt and passed into a second hot water bath, where the second valve or shell is removed.

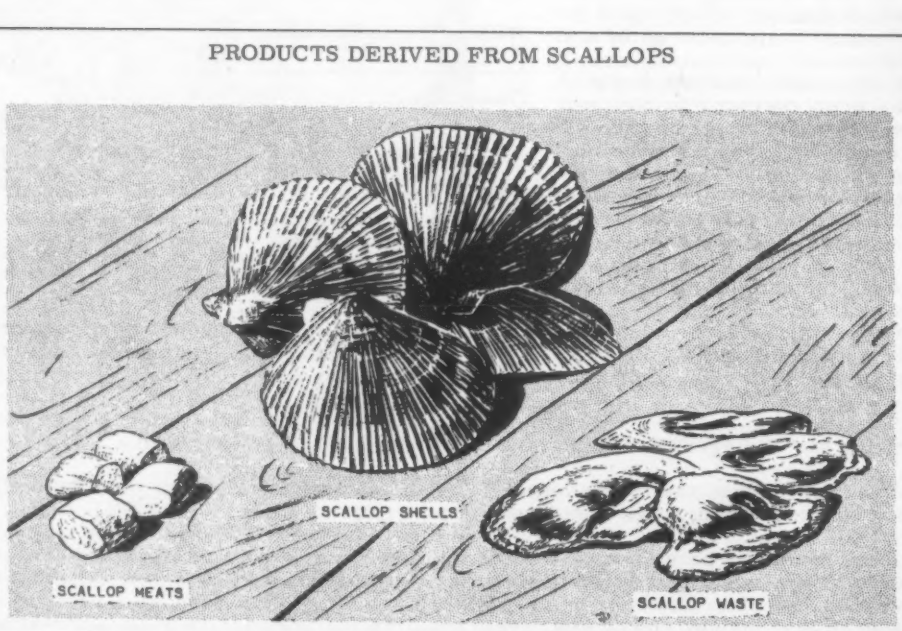
7. Meats (muscles) are then hand-packed or suctioned off the line to a wash bath prior to sorting, packing, and freezing.

8. The viscera, suctioned off earlier, fall into a trap tank attached to the vacuum line, where they are digested and concentrated to the desired percentage of moisture.

In view of the success of removal of viscera by vacuum, using a hand-held hose, it seems possible that further research will yield completely automatic removal of viscera, and the necessity of handling will be eliminated.

Collecting the viscera in a trap tank off the vacuum line facilitates utilization of the viscera in animal feeds. A trap tank of a size suitable for commercial operation could be used also as a container for digestion of viscera by merely adding a steam pipe to the bottom of the tank. The digested product could then be piped into dehydrators or blenders for further preparation.

PRODUCTS DERIVED FROM SCALLOPS



RED CRAB EXPLORATIONS OFF THE NORTHEASTERN COAST OF THE UNITED STATES

By Ernest D. McRae, Jr.*

SUMMARY

Limited explorations for the deep-water red crab (Geryon quinquedens) were conducted by the U. S. Bureau of Commercial Fisheries during the 12 months beginning in July 1959. A total of 121 drags was made with commercial trawling gear in areas between the Gulf of Maine and Cape Hatteras. Depths investigated ranged from 50 to 1,040 fathoms and red crabs were taken between 60 and 800 fathoms. The best fishing was between 200 and 300 fathoms.

Results of tests indicate that both yield and quality of the red-crab meat is good, but the quantities of crabs taken are considered insufficient to support profitable commercial-scale fishing for red crabs alone at the depths where the largest concentrations of crabs were found.

INTRODUCTION

To investigate the extent and scope of little-known or seldom-utilized marine fishery resources and to determine whether these resources might be profitably exploited through commercial fishing are functions of exploratory fishing conducted by the U. S. Bureau of Commercial Fisheries Exploratory Fishing and Gear Research Base, Gloucester, Mass. Pursuant to this, a preliminary survey of the deep-water red crab (Geryon quinquedens Smith) resource was made in areas along the continental slope and the outer edge of the continental shelf bordering Middle and North Atlantic States. The objectives of this survey were to determine the magnitude and extent of the resource and to gather available biological data on this species of crab.

Fig. 1 - The M/V Delaware, a conventional, steel-hulled North Atlantic otter trawler with a displacement weight of 518 tons and a length of 147.5 feet, is rigged for side fishing. The Bureau-owned vessel is used for exploratory fishing and gear research by the Gloucester, Mass., Exploratory Fishing and Gear Research Base.

BACKGROUND

The red crab (G. quinquedens) was first described in 1879 (Smith 1879). Since then, little research effort has been concentrated specifically on the species and most data available have resulted from general explorations. These indicate that the Atlantic range of this crab extends from Nova Scotia to Cuba in depths from approximately 60 to greater than 1,000 fathoms.

A report on the results of exploratory cruises made in 1884 by the U. S. Commission of Fish and Fisheries steamer Albatross (Smith 1887) includes red-crab catch records from 2 stations off Chesapeake Bay in 444 and 568 fathoms, 4 stations off Long Island in 510 to 861 fathoms, and 13 stations off Martha's Vineyard in 353 to 1,043 fathoms. In reference to the red-crab catches made in the Martha's Vineyard area, Tanner (1886) commented: "The hauls (4 drags made on Aug. 19, 1884 in 538 to 728 fathoms) were particularly

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rich in the large red crabs (Geryon quinquedens) . . . Several being prepared they were eaten by the officers, who were unanimous in the opinion that they were very sweet and palatable."

The Woods Hole Oceanographic Institution conducted experimental deep-water fishing between Nova Scotia and Virginia from 1948-53. In part, this work resulted in the collection of about 6,750 red crabs from an approximate depth range of 100 to 730 fathoms. The crabs were taken during 161 drags that were so generally distributed throughout the area explored that Schroeder (1955, 1959) felt encouraged to speculate upon the possible future development of this resource into a commercial fishery.

In the period 1955-57, the U. S. Bureau of Commercial Fisheries conducted deep-water lobster explorations from the perimeter of Georges Bank to Hudson Canyon (McRae 1960). Red-crab catches comparable to those reported by Schroeder were taken incidental to these explorations. In consequence, additional limited explorations for red crabs were planned. The work was carried out from the Bureau research vessel Delaware (fig. 1) at intermittent intervals within the 12 months beginning in July 1959.

Results of the Bureau's first red-crab trawling cruise (Delaware Cruise 59-7) were promising and an additional cruise (Delaware Cruise 59-10) was made for the specific purpose of gathering data on red-crab abundance from depths exceeding those originally planned for the explorations. The data resulting from these cruises, augmented by those taken during three subsequent cruises (Delaware Cruises 59-11, 60-2, and 60-6), are reported here.

AREA FISHED

Exploratory trawling was conducted in selected areas from the Gulf of Maine to Cape Hatteras (fig. 2). A total of 121 drags was made in depths ranging from 50 to 1,040 fathoms. Dragging effort was distributed as follows: 29 drags in less than 100 fathoms; 35 in 100 to 199 fathoms; 38 in 200 to 299 fathoms; and 19 drags in 300 fathoms or more. In order to minimize variations in depth during individual drags, depth contours were followed as closely as possible. In spite of this, marked irregularities in trawling depth were occasionally experienced over areas of broken and precipitous bottom.

The submerged edge of the continent off the northeastern United States is characterized by a succession of transverse submarine canyons. These deeply cut and serrate the slope and outer edge of the continental shelf and, in some areas, result in extremely broken and irregular bottom. It would be difficult to find an area more jagged and less conducive to trawling than that lying to the north of Cape May, N. J., in depths greater than 150 fathoms.

Of the many canyons, the best known (in order from south to north) are: Norfolk, Washington, Baltimore, Wilmington, Hudson, Block, Atlantis, Veatch, Hydrographer, Welker, Oceanographer, Gilbert, Lydonia, and Corsair Canyons. The largest of the submarine canyons (Hudson Canyon) exceeds the Grand Canyon of the Colorado in magnitude. The area of red-crab exploration included the canyons lying west and south of Hydrographer Canyon with supplemental coverage in areas within the Gulf of Maine (fig. 2).

FISHING GEAR AND METHODS

Standard commercial types of otter-trawl gear were used. The otter boards (doors) employed varied with the net in use. The nets used included (1) standard No. 36 and No. 41 New England otter-trawl nets (Knake 1956) and (2) 40- and 100-foot Gulf of Mexico shrimp trawls (Bullis 1951). The New England nets were used during 74 drags--55 drags with the No. 36 net and 19 with the No. 41 net. The 40-foot Gulf shrimp trawl was used in 44 drags; the 100-foot shrimp trawl was used in the remaining 3 drags. To facilitate deep trawling during Delaware Cruise 59-10, a bridle-rigged 40-foot shrimp net was used with a single dragging warp. The warp was comprised of $\frac{3}{4}$-inch cable from both winch drums (joined together by shackling) supplemented by additional $\frac{1}{2}$-inch wire from one drum. The resulting single warp was $2\frac{1}{2}$ miles (2,200 fathoms) long and allowed trawling to over 1,000 fathoms.

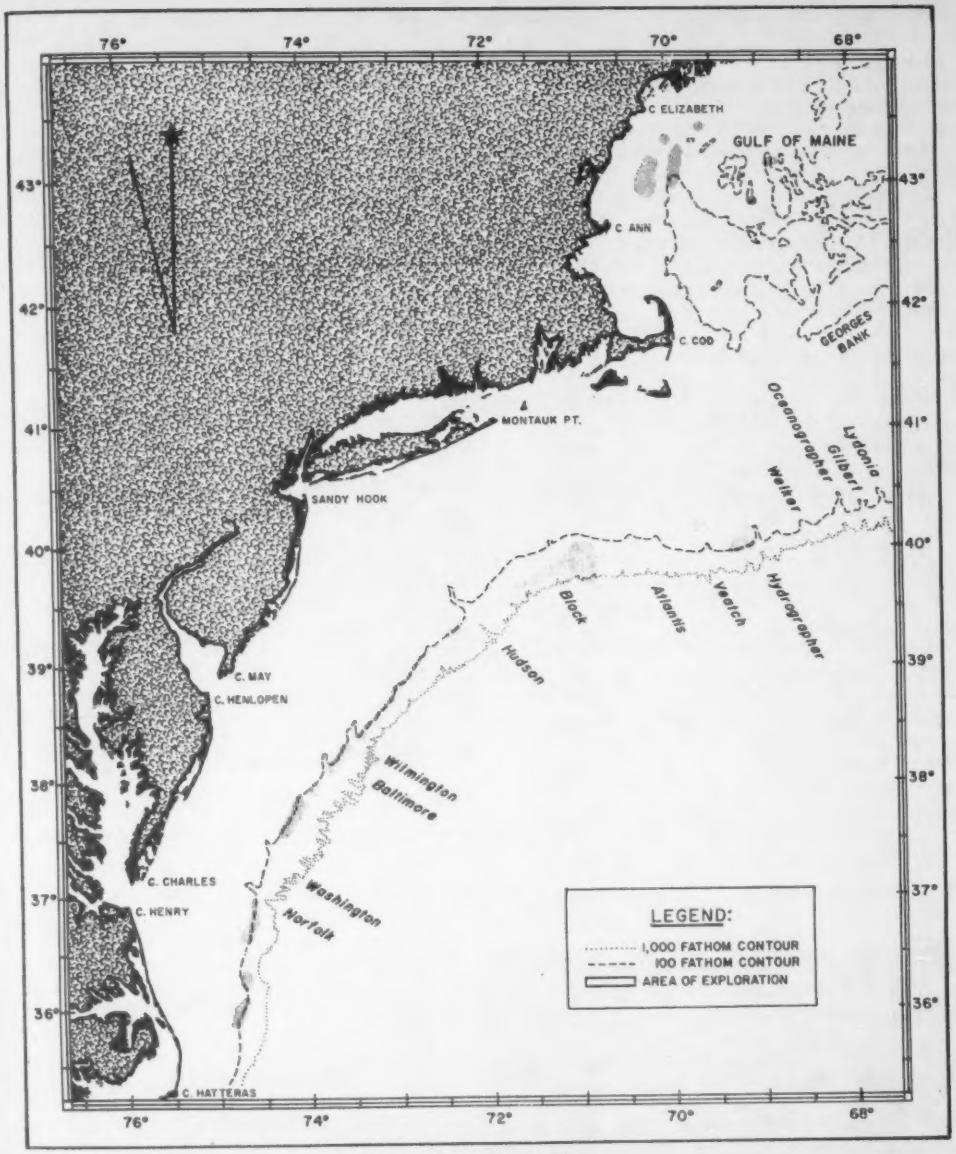

Fig. 2 - Area of explorations.

Roller gear was employed during 15 of the drags made with the No. 41 net to reduce gear damage when trawling was carried out on areas of hard bottom.

Damage to the nets was minimal. Some trawling difficulties, however, were experienced occasionally through hang-ups, bogged doors, or snarls. The latter resulted mainly from the net turning over when being dragged along steeply-inclined slopes.

FISHING RESULTS

Uniform seasonal coverage was not accomplished during the limited scope of these investigations. In the areas exclusive of the Gulf of Maine, 35 percent of the trawling was conducted during winter and 57 percent during the summer[1/]. All sampling in the Gulf of Maine was accomplished in September at the end of the summer season.

Eighty-nine of the 121 drags made during the explorations resulted in catches containing red crabs. A total of 3,279 red crabs with an aggregate estimated weight of 4,049 pounds was recorded. Individual catches varying from 1 to 386 crabs were made in depths ranging from 60 to 800 fathoms (fig. 3). The record crab catch taken during the Delaware explorations resulted from a 70-minute drag in a depth of 200 to 250 fathoms. This catch of crabs weighed 558 pounds; the catch-rate was 478 pounds per hour. Large numbers of small red crabs resulted from trawling in the Gulf of Maine but, as this species was not the primary target for that cruise (Delaware Cruise 59-11), only limited data were taken from many of those catches.

Fig. 3 - Red-crab catch taken east of Ocean City, Md.

The most productive depths found during the explorations were between 200 and 300 fathoms. The only drags resulting in catches of 100 (or more) pounds of red crabs per hour of trawling were made (1) entirely within the 200- to 300-fathom depth range, (2) when trawling into this depth from deeper or more shallow water, or (3) when trawling from this depth into deeper or more shallow waters.

The most productive area discovered during the explorations lies approximately east-to-southeast of Ocean City, Md. (lat. 37°40'-38°27' N., long. 73°20'-74°12' W), in 200 to 300 fathoms. This may be only one of several such areas, as corresponding depths along the southern edge of Georges Bank produced good red-crab catches during the earlier lobster explorations.

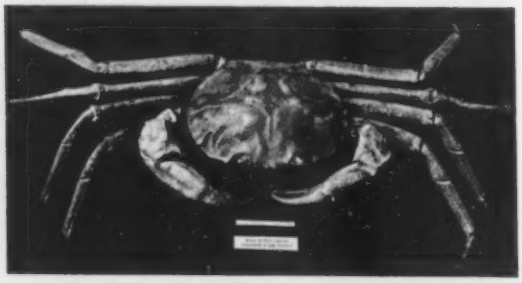

Fig. 4 - Male red crab taken from 250 fathoms depth.

In the course of the explorations, red crabs ranging in size from large males weighing approximately 2¼ pounds apiece (fig. 4) to small individuals weighing less than an ounce each were taken. Although small crabs were numerous in some areas, they were neither of sufficient size nor taken in sufficient quantities to be utilized commercially. The largest catches were taken in depths and areas where only large size males and females were found. The largest females were smaller than the largest males and seldom exceeded one pound in weight. A

1/The seasons are considered to be defined by the winter solstice (Dec. 21-22), the vernal equinox (March 21), the summer solstice (June 21-22), and the autumnal equinox (Sept. 23).

random sample was taken from one of the large catches, and the mean weights of sample individuals (to the nearest ounce) were determined to be: males, 28 ounces; females, 11 ounces; and ovigerous females, 16 ounces.

QUALITY, YIELD, AND PRESERVATION

Shipboard and shore tests[2/] were conducted to determine quality, texture, and palatability of red-crab meat as well as meat yield and methods for the preparation and preservation of the meat and the whole crabs. The results follow:

1. For shipboard handling and extended preservation of red-crab meat during the exploratory cruises, the whole crabs were steam-cooked (fig. 5) and frozen. No successful technique was devised to eliminate the occasional breaking off of the brittle crab claws and legs during the cooking process or while handling and storing the prepared crabs.

2. The texture of the meat before and after freezing is delicate and tender. Picking is facilitated by the leathery and easily-broken shell.

3. Ten members of a taste panel rated the unseasoned, picked meat from steam-cooked and frozen whole crabs as: 40 percent, very good; 30 percent, good; 30 percent, fair.

4. A number of steam-cooked and frozen crabs were thawed and the meat carefully picked from the shells. The meat yield was found to vary from 32.5 percent to 45.7 percent of the unthawed weight of the frozen whole crab. The average yield was 36.5 percent.

Fig. 5 - Method of steam cooking crabs during explorations.

DISCUSSION

The red crab resource, in many respects, seems to be adaptable to commercial use. In the most productive areas, crabs of only the larger and more desirable sizes were caught. Red-crab shell is thin and leathery in consistency--a factor which facilitates picking. The meat yield is relatively high, the texture of the meat is tender, and the taste is savory and palatable. However, for a fishery resource to be profitably utilized, a favorable balance must exist between the cost of operation and the value of the catch. The best red-crab catches taken during the explorations were not large enough for the profitable operation of even the smallest-size vessels capable of trawling these depths. At present, commercial fishing for red crabs would be feasible only if fishing were carried out simultaneously for crabs and some other commercially-acceptable species (such as deep-water lobsters) found with the crabs or in the same general areas.

Further explorations may result in the discovery of new areas where larger concentrations of crabs might support commercial red-crab fishing. Advances in basic gear design or the development of new fishing gear and methods could also make the profitable utilization

2/Taste panel tests and the determination of meat yield were made by Bureau technologists through the cooperation of the Bureau's Technological Laboratory, Gloucester, Mass.

of this potential fishery resource possible. It is felt that the quality of red-crab meat would encourage commercial fishing if future developments were to offer a prospect for profitable operations.

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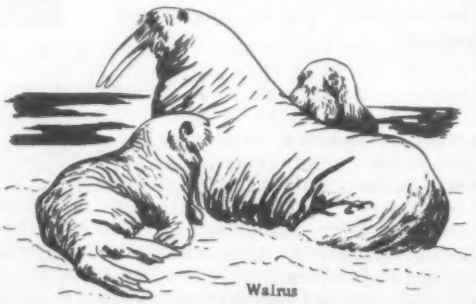
UTILIZATION OF WALRUS IN ALASKA

Approximately 1,153 to 1,453 adult and juvenile walruses were harvested (killed and retrieved) by Alaskan natives during the spring of 1959. The total number killed, however, ranged from 2,700 to 3,600 animals, of which approximately 34 percent were adult and juvenile males, 42 percent calves. The number of animals killed and lost or abandoned and left to die (calves) exceeds the number killed and retrieved.



Walrus

Walrus meat is used as human and dog food. The degree of utilization depends largely on the size of harvest, ranging from nearly 100 percent utilization in those villages having a small harvest to less than 10 percent in those having a large harvest.

Female and young male walrus skins are used as boat coverings, the degree of utilization depending on harvest size. Income derived from carved and uncarved walrus tusks forms the basis of the economy in many coastal villages. (Report from the State of Alaska.)

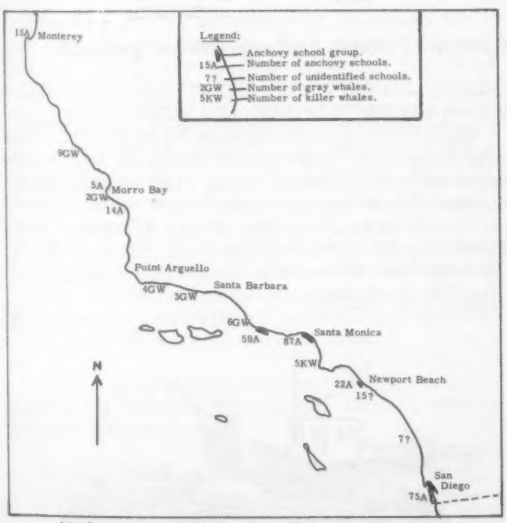
TRENDS AND DEVELOPMENTS

California

PELAGIC FISH POPULATION SURVEY CONTINUED:

Airplane Spotting Flight 61-2-Pelagic Fish: The inshore area from the United States-Mexican border to Point Arena, Calif., was surveyed from the air (February 14-17, 1961) by the California Department of Fish and Game Cessna "182" 9042T to determine the distribution and abundance of pelagic fish schools.

Fair weather generally prevailed along the California coast, but some low clouds and haze made observations difficult in parts of southern California and strong northwest winds were encountered north of Monterey Bay.



Airplane spotting flight 61-2 (Feb. 14-17, 1961.)

A total of 299 fish schools, 277 anchovy, and 22 unidentified, was tallied during the survey. Seventy-five of the anchovy schools were close to shore along the Coronado Strand near San Diego, 22 were off the Newport Beach pier, 87 (45 on February 14 and 42 on February 17) were about two miles northwest of the Santa Monica pier, 59 were just east of Pt. Mugu, 14 at Avila, 5 off Morro Rock and 15 small fragmentary spots were located from one to two miles north of Pt. Pinos in Monterey Bay.

The 22 unidentified schools were between Oceanside and Laguna Beach.

Only 24 California gray whales were seen during this flight, all traveling northward between Point Dume and Point Piedros Blancas.

During the afternoon of February 17, five large Pacific killer whales (Grampus rectipinna) were observed one-half mile offshore between Rocky Point and Point Vicente.

Note: Also see Commercial Fisheries Review, April 1961, p. 14.

* * * * *

PREPARATION FOR TUNA STUDY ON PACIFIC COAST:

M/V "Nautilus" Cruise 61-N-1-Tuna: The area along the southern California mainland from Corona del Mar to Dana Point, and off Santa Catalina Island (Whites Cove) and San Clemente Island (windward and leeward sides) was surveyed (Feb. 1-4, Feb. 7-9, 1961) by the California Department of Fish and Game's research vessel Nautilus. Objectives were to collect blood samples from kelp bass (Paralabrax clathratus) in order to determine if

California Kelp Bass (Paralabrax clathratus)

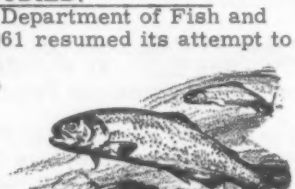
genetic serological differences existed among the fish from the three areas; and perform a reciprocal blood study to test one method of serological analysis against another, in preparation for tuna work.

Due to a scarcity of biting fish at San Clemente Island, insufficient blood samples were obtained for significant testing. Santa Catalina Island and mainland areas, however, provided enough fish for a test. The results showed significant genetic serological differences between kelp bass from these two areas. The reciprocal study revealed that a new method of blood analysis was highly inaccurate when correlated with the standard method.

* * * * *

SEAWARD MIGRATIONS OF YOUNG KING SALMON STUDIED:

The California Department of Fish and Game in March 1961 resumed its attempt to solve the mystery of what happens to king salmon on their downstream migration to the sea.

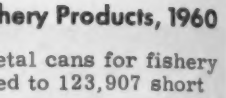


The first step will be a test of midwater trawl gear which successfully recovered fingerling salmon last year just before they entered ocean waters. The shakedown cruise was scheduled for the Carquinez Straits, March 13-17. Once the gear is in working order, cruises were planned for every other week starting March 27 and continuing throughout 1961. The purpose will be to recover previously-marked fingerling king salmon in the brackish water phase of their migrations. These numbers, compared to the numbers released, will give fisheries scientists an indication of how many fish are lost between spawning gravels and the ocean.

The first of 10 weekly releases of three 50,000-fish lots at Coleman Hatchery near Anderson, at Rio Vista and in San Pablo Bay, began on March 28. Marking at Coleman Hatchery began on March 20. Included in the marking experiment was the transportation of some lots of fish by vessel from Rio Vista to San Pablo Bay. The first lot was released at San Pablo on March 31.

Cans- Shipments for Fishery Products, 1960

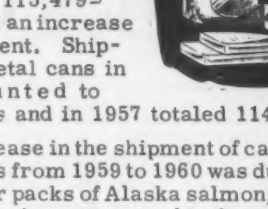
Total shipments of metal cans for fishery products in 1960 amounted to 123,907 short tons of steel (based on the amount of steel consumed in the manufacture of cans) as compared with 115,479[1/] tons in 1959, an increase of 7.3 percent. Shipments of metal cans in 1958 amounted to 123,602 tons and in 1957 totaled 114,500 tons.



The increase in the shipment of cans for fishery products from 1959 to 1960 was due primarily to better packs of Alaska salmon, Maine sardines, shrimp, tuna, and jack mackerel. The 1960 pack of tuna set another new record. The over-all pack of principal fishery products amounted to about 675.0 million pounds, higher by about 50 million pounds than the 1959 pack.

1/Revised.

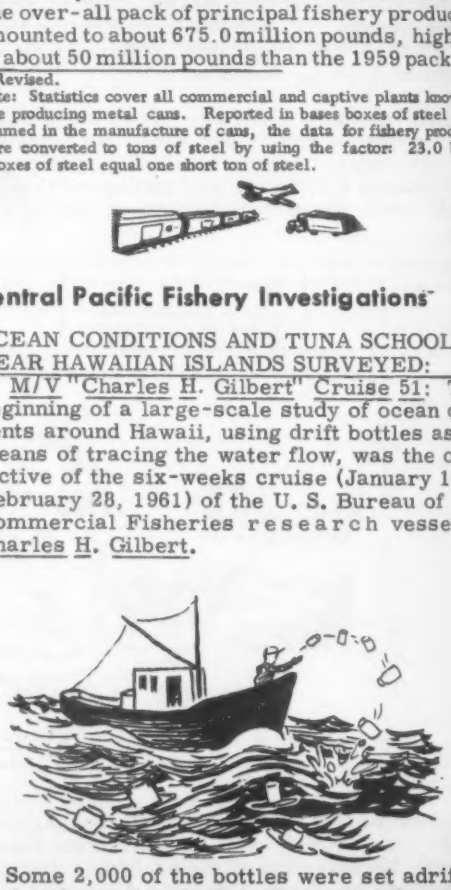
Note: Statistics cover all commercial and captive plants known to be producing metal cans. Reported in bases boxes of steel consumed in the manufacture of cans, the data for fishery products are converted to tons of steel by using the factor: 23.0 base boxes of steel equal one short ton of steel.



Central Pacific Fishery Investigations

OCEAN CONDITIONS AND TUNA SCHOOLS NEAR HAWAIIAN ISLANDS SURVEYED:

M/V "Charles H. Gilbert" Cruise 51: The beginning of a large-scale study of ocean currents around Hawaii, using drift bottles as a means of tracing the water flow, was the objective of the six-weeks cruise (January 16-February 28, 1961) of the U. S. Bureau of Commercial Fisheries research vessel Charles H. Gilbert.



Some 2,000 of the bottles were set adrift during the cruise, both to the east and west

of the main Hawaiian Islands. A few of the bottles released early in the voyage have already been picked up on the beaches of Maui, Molokai, and Oahu Islands.

The cruise covered an area greater than 0.5 million square miles, from French Frigate Shoal to Johnston Island. The purpose of the cruise was to study the temperature, salinity, and currents of the surface waters as related to the distribution of tuna schools and plankton organisms, and particularly to seek clues to the pattern of the annual spring migration of skipjack tuna (aku) into Hawaiian waters.

The return of the striped orange and white cards contained in the bottles will furnish information of value, not only to fishery scientists, but to all who travel on the ocean. The indications of currents given by the bottles can be used in searching for boats or life rafts drifting at sea, and the information may also be useful in planning the best locations for disposing of various types of waste materials in the ocean. Persons who find these bottles are urged to fill in the information called for on the cards and return them to the Bureau's Biological Laboratory at Honolulu.

The expedition searched at Johnston Island and French Frigate Shoals for the live-bait necessary for skipjack fishing, but found suitable bait fish very scarce. The only bait caught was a small amount of tilapia on Oahu and a few buckets of aholehole in Pearl Harbor. Tuna schools were also scarce in most of the areas covered by the survey. The only area in which a large number of schools were sighted was about 300 miles south of Honolulu, and those schools were small, fast-moving, and difficult to fish. The sighting of 59 bird flocks indicated the presence of the following fish schools: 7 skipjack, 1 yellowfin, 2 dolphin, and 49 unidentified.

Two lures trolled during daylight hours yielded 28 dolphin, 6 yellowfin tuna, 1 wahoo, and one skipjack tuna.

While at French Frigate Shoal the field party made a census of turtles and of the rare Hawaiian monk seals which inhabit that wildlife sanctuary. Several seal pups still under their mothers' care were seen, in addition to a fair number of adults.

Dams

STUDY ANNOUNCED OF FISH PASSAGE PROBLEM ON MIDDLE SNAKE:

A vigorous short-range attack on the problem of passing fish downstream at the proposed high dam sites on the Middle Snake River in Idaho was announced on March 15, 1961, by Secretary of the Interior Stewart L. Udall.

He said this is the first step in a comprehensive review of the Middle Snake development potential including power, water storage for river regulation, recreation, fish, and other resource uses.

In a letter to the Federal Power Commission, which currently is holding hearings on applications for construction of dams at the Nez Perce and High Mountain Sheep sites, Secretary Udall recommended that the Commission defer action on the applications until the Department's accelerated fish-passage studies have been completed.

Secretary Udall said the Department has set the end of 1964 as the target date for completion of a study program. He added, however, the scope of the studies will depend on the amount of money made available by the Congress for this purpose.

Secretary Udall said dams proposed for construction in the Middle Snake area could have a disastrous effect on anadromous fish, especially in the Salmon River which provides an estimated 50 percent of the Snake River run unless proven methods are found to protect the downstream migrants.

"We intend to learn as much as possible about which direction a sound development program should go. We believe that potential alternative sources of new power make prudent such a delay in further consideration of projects for the Middle Snake," Secretary Udall said.

He stressed that the Administration favors comprehensive basin development, but said, "We can't wait 10 or 15 more years."

Secretary Udall said the Department is "open minded" on the problem of additional storage. He said it would be a mistake to single out one particular dam in the studies, saying, "We need to know all we possibly can in the shortest possible time about full basin development."

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Federal Purchases of Fishery Products

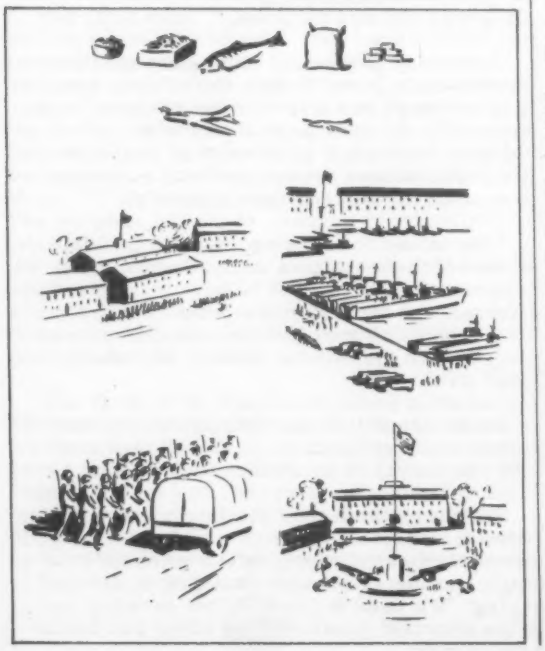
DEPARTMENT OF DEFENSE PURCHASES, JANUARY-FEBRUARY 1961:

Fresh and Frozen Fishery Products: For the use of the Armed Forces under the Department of Defense, about 1.7 million pounds (value $921,000) of fresh and frozen fishery products were purchased in February 1961 by the Military Subsistence Supply Agency. This was lower than the quantity purchased in January by 6.1 percent and 4.1 percent under the amount purchased in February 1960. The value of the purchases in February this year was lower by 0.4 percent as compared with January but was 1.0 percent higher than for February a year ago.

Table 1 - Fresh and Frozen Fishery Products Purchased by Military Subsistence Supply Agency, February 1961 with Comparisons

QUANTITY				VALUE			
February		Jan.-Feb.		February		Jan.-Feb.	
1961	1960	1961	1960	1961	1960	1961	1960
(1,000 Lbs.)				($1,000)			
1,743	1,817	3,599	3,314	921	912	1,846	1,649

During the first 2 months of 1961, purchases totaled 3.6 million pounds (valued at $1.8 million)--an increase of 8.6 percent in quantity and 11.9 percent in value as compared with the same period in 1960.



Prices paid for fresh and frozen fishery products by the Department of Defense in February 1961 averaged 52.8 cents a pound, 3.0 cents higher than the 49.8 cents paid in January and 2.6 cents above the 50.2 cents paid during February last year.

Canned Fishery Products: Tuna was the principal canned fishery product purchased for the use of the Armed Forces during February this year. In the first two months of 1961, purchases were up for canned tuna by 34.0 percent and canned sardines by 16.1 percent as compared with the same period in 1960. No canned salmon was purchased during the first two months of 1960 and 1961

Table 2 - Canned Fishery Products Purchased by Military Subsistence Supply Agency, February 1961 with Comparisons

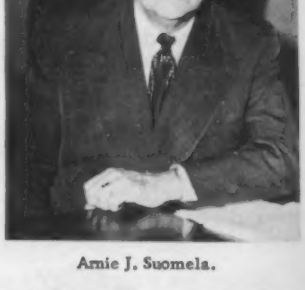
Product	QUANTITY				VALUE			
	February		Jan.-Feb.		February		Jan.-Feb.	
	1961	1960	1961	1960	1961	1960	1961	1960
	(1,000 Lbs.)				($1,000)			
Tuna	363	566	1,365	1,017	161	260	603	451
Salmon	-	-	-	-	-	-	-	-
Sardine	15	25	36	31	6	10	17	14

Note: Armed Forces installations generally make some local purchases not included in the data given; actual total purchases are higher than indicated because local purchases are not obtainable.

Fish and Wildlife Service

FORMER COMMISSIONER ACCEPTS POSITION AS FISHERY ATTACHE TO JAPAN:

The resignation of U. S. Fish and Wildlife Service Commissioner Arnie J. Suomela, effective February 11, 1961, has been accepted by the President. Suomela, who has served as Commissioner since 1956, left for Tokyo in March to take on his new duties with the State Department as Fisheries Attache in Japan. Suomela's new duties with the U. S. Embassy in Tokyo will include liaison between commercial fishing interests in Ja-



Arnie J. Suomela.

pan and those in the United States, and keeping United States interests informed of Japanese fishery trends and developments.

There are at present only three fishery posts in the United States diplomatic service. The need for special fishery representation in Japan is particularly great because of the importance of fishing in the Japanese economy and because the United States and Japanese fishing industries have many close ties through trade and common conservation interests.

Suomela has a background of long experience in fishery administration, beginning with the U. S. Bureau of Fisheries in 1924, and was for 9 years Director of the Oregon Fish Commission. For the past 4 years he has been Commissioner of the U. S. Fish and Wildlife Service, and in that capacity has represented the United States on a number of international commissions in which Japan also takes part. He is thus well acquainted with Japan's international fishery relations and with the leading figures in Japanese fishery circles.

Fish Farming

EXPERIMENT ON STOCKING ALABAMA FARM PONDS WITH CHANNEL CATFISH:

A channel catfish stocking experiment involving some 120 farm ponds was outlined by Dr. Homer S. Swingle of Auburn University at a conference held at the University to develop a cooperative research project on channel catfish stocking in farm ponds.

Channel Catfish

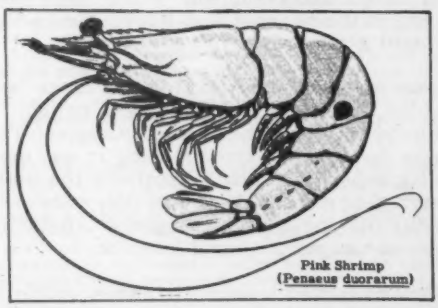
The ponds will be located and checked by Alabama and U. S. Bureau of Sport Fisheries and Wildlife biologists. About 800,000 fingerlings will be furnished by the Marion, Ala., National Fish Hatchery for the proper stocking of the waters. State and Bureau biologists will examine the fish populations created to evaluate the result of the stocking. Dr. Swingle and his staff will coordinate the work of the various agencies and serve as a collection agency for the data as they are accumulated.

Florida

FISHERIES RESEARCH, OCTOBER-DECEMBER 1960:

The Marine Laboratory of the University of Miami is carrying on research on fisheries with funds provided by various sources, including the Florida State Board of Conservation and the U. S. Fish and Wildlife Service. The research of interest to commercial fisheries which appeared in the Laboratory's December 1960 Salt Water Fisheries Newsletter follows:

Larval Shrimp: Shrimp is Florida's most important fishery resource. About 25 million pounds of shrimp, worth approximately $15 million, are caught each year. Almost one-half of these are pink shrimp from the Tortugas grounds northwest of Key West. Landings of Tortugas pink shrimp dropped from 24.2 million pounds in 1958 to 13.8 million pounds in 1959. This has had serious consequences for the fishing industry. Biologists at the Marine Laboratory are studying the pink shrimp in an effort to understand the reasons for these sharp fluctuations in the shrimp population.


Pink Shrimp (Penaeus duorarum)

Questions to be answered include: (1) At what season of the year is spawning most successful? (2) Is there any relation between the number of spawners and the number of offspring which are produced, or are other factors of greater importance in determining the number of offspring which survive? (3) How do the young shrimp reach the inshore nursery grounds?

The biologists hope eventually to predict the number of shrimp which will be caught.

As a first step in this program, the early life of the pink shrimp is being studied, with the support of the Bureau of Commercial Fisheries. Perhaps the most critical stage in the life of the shrimp is when it hatches from the egg. For approximately three weeks after hatching, the baby shrimp drift about in the water. They are able to swim only feebly and are at the mercy of currents which may carry them inshore to the nursery grounds or offshore to destruction.

The spawning grounds of the Tortugas shrimp extend about 30 miles north of a line drawn from Key West to the Dry Tortugas. The shrimp lay their eggs in water from 50 to 150 feet in depth. In the summer smaller shrimp, which are in the shallow southern part of this area, spawn heavily. In the winter, spawning is greater among larger shrimp, which are in the deeper northern part.

Spotted Sea Trout: In the last quarter of 1960 over 5,000 spotted sea trout were tagged on the west coast of Florida near Fort Myers, Cedar Key, and Apalachicola. Fish were tagged with a green plastic strip placed in the body cavity. This tag is found by fishermen at the time the fish is cleaned. Some tags carry a yellow plastic streamer which protrudes from the fish's body. This streamer draws the attention of the fisherman to the tag within. More than 500 fish with tags have been caught and returned. Fishermen take the tag to the nearest fish house where they are paid a reward of 75 cents.

For the most part spotted sea trout "stay at home." Some 95 percent were caught within 30 miles of the place of tagging. This means that the sea trout fishing in any community depends on how effectively the local resource is managed. A few fish wandered greater distances. One tagged at Apalachicola was caught at Grand Isle, La.

Others moved lesser distances within the State. No tagged sea trout were returned from south of Fort Myers or from the east coast of Florida.

Female sea trout grow faster than males and also live longer. A three-year-old female would be 12½ inches long but a male is half an inch shorter. Few males were over five years old, but females live as long as eight years.

A tagging experiment has been commenced at Fort Myers to estimate the number of sea trout in the area and the rate at which they die. A reward of 75 cents will be paid for the return of a trout tag.

Frozen Breaded Shrimp Quality: The bacteriology of breaded shrimp has progressed into the final stage of experimentation. The last portion consisting of inoculating a sample of shrimp with the pathogen Staphylococcus aureus and another sample with Streptococcus faecalis. Both these organisms are of public health significance, and have been found by many investigators to be present in frozen food products, after many months of frozen storage.

The samples of shrimp are permitted to go through three cycles of alternate thawings and refreezings. Microbiological analyses are made after each phase, in order to determine the effect of the fluctuating temperatures.

Use of Okra Powder in Preserving Fresh and Frozen Fishery Products: An experiment was made to determine the possible use of okra in fishery products preservation. Ice containing 300 and 500 parts per million okra powder was used in the storage of fresh shrimp. The shrimp were stored for 15 days, being subjected to analysis of a taste panel and bacteriological analysis. Evaluation was made of flavor, odor, and appearance (melanosis).

Further testing was made applying okra as a glaze to frozen shrimp to prevent "freezer-burn" desiccation. Present methods used in the fishing industry are water glazing and alginate glazing. The properties of okra, being similar to that of the alginates thus may find practical application in the preservation of frozen fishery products. This storage testing will continue over a period of one year.

Results thus far have shown little difference between plain ice and okra ice at the concentrations used. Further tests are being conducted. Results from the frozen storage studies are too premature to detect any differences between the variables being studied.

Nonutilized Species Incidental to Shrimp Fishing: Investigations on the utilization of nonutilized fish caught incidentally in the shrimp fishery have led to the analysis of the liquified fish and of the liquid and solid portions that were separated. The whole

liquid fish contained about 14 percent protein, 3.4 percent minerals, and 78 percent water. The liquid portion which was skimmed off the top had 18 percent total dissolved solids, of which more than half were protein. This means that a good deal of the protein had become soluble and had concentrated in the liquid. The solid residue when dried had 52 percent protein.

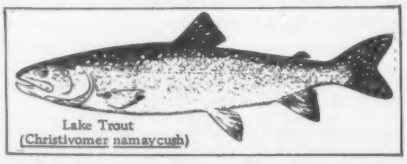
The economic significance of the process is that nonutilized fish can be stored in acid at very nominal cost; in the meantime the fish autodigests and becomes a slurry, from this a liquid and solid are separated. The liquid is a source of readily available proteins which could be used as a pet-food supplement, protein concentrate, mink food, flavoring material, etc. The solid fraction can be dried into a commercial-type meal.

Another aspect of this investigation is to study the process of self digestion and determine which are the most favorable conditions.

Great Lakes Fishery Investigations

LAKE TROUT RESTOCKING PROGRAM GAINS MOMENTUM:

Over one million hatchery-reared lake trout were planted in Lake Superior during 1960 as part of a cooperative effort on the part of the U. S. Bureau of Commercial Fisheries, the states bordering on the Great Lakes, and Canada. By restocking the Great Lakes with hatchery-reared lake trout the biologists hope to rebuild the stocks that have been depleted by the parasitic sea lamprey.



Lake Trout
(Christivomer namaycush)

Evidence accumulates to indicate that survival of some plants of hatchery fish is little short of sensational. An estimated 40 percent of the 1955 plant of 100,000 lake trout at Bayfield, Wis., has already been recovered by the commercial fishery. The 1959 plant of 30,000 lake trout in Lake Michigan has already yielded over 200 recoveries. Many of these fish are about 18 inches in length--growing more than twice as fast as lake trout formerly did in Lake Michigan. Many of these lake trout were recaptured in perch gill nets in only five feet of water--something that never happened before.

Gulf Fishery Investigations

NEW CIRCULATING SEA WATER LABORATORY DEDICATED:

The new recirculating sea water laboratory housed in a remodeled building of the U. S. Bureau of Commercial Fisheries Biological Laboratory in Galveston, Texas, was dedicated in March this year. Two 29,000-gallon redwood water tanks and a series of filters, pumps, and plastic plumbing will supply the laboratory, where studies on the life history, diseases, and natural enemies of shrimp and commercial fishes will be carried out under controlled conditions.

Massachusetts

MARINE FISHERIES STUDY RECOMMENDS ACCELERATED RESEARCH AND MANAGEMENT PROGRAM:

Early in 1960 the Massachusetts Natural Resources Commissioner, acting under a directive from the Governor, appointed a 10-man Marine Fisheries Advisory Commission. The Commission, broadly representative of sport and commercial fishing, aquatic recreation, and industry interests, was to make a comprehensive study of the State's marine fisheries programs and problems. The Commission (consisted of 10 members) was charged to assist in formulating a sound, long-range State fisheries policy, to serve as a clearinghouse for marine proposals, and to submit its report and recommendations to the Governor by year's end.

A series of public hearings were held during the year, which served to bring sport and commercial factions together to discuss mutual as well as divergent interests. Upshot of the study, embodied in a series of specific recommendations, was the general proposal to strengthen the State's Marine Fisheries Division by expanding both its responsibilities and budget to permit initiation of a substantial marine fishery research and development program.

The Commissioner of Natural Resources on January 22, 1961, submitted to the Governor of Massachusetts the report (Final Report on the Studies of Massachusetts Marine Fisheries Problems by the Marine Fisheries Advisory Commission) of the State's Advisory Commission on Marine Fisheries relative to marine fisheries problems in Massachusetts.

The report sums up fisheries problems in 5 different categories and makes 16 specific recommendations to improve the sport and commercial fisheries in Massachusetts.

"Unless immediate steps are taken to accelerate the Commonwealth's grossly inadequate programs of research and management, and unless the various fishing factions along the coast learn to successfully coexist, Massachusetts will be unable to regain her standing as a leader in the marine fisheries field among States on the Atlantic Coast," the report warns.

Cited are statistics indicating that some 2,000 miles of coastline and 1,800 square miles of water fall within the territorial jurisdiction of the Commonwealth. These waters have a potential productivity of double their equivalent in land area, the report continued.

The Commission estimates that 5,000 commercial fishermen, 250,000 salt-water anglers, 30,000 boat owners, and 10,000 skin divers derive their sport or livelihood directly from these waters, and contribute some $50 million annually to the Commonwealth.

In commenting upon the commercial fishery for finfish, the Commission notes that some 528 million pounds of fish were landed in Massachusetts in 1958, but that due to problems termed both biologic and economic the industry is currently in "precarious" condition.

Responding to a request to open waters south and east of Cape Ann and on the east side of Cape Cod to commercial fishing, the Commission stated: "Whether or not draggers are allowed in these areas is not a conservation issue, at least on the basis of information now available."

The report calls attention to the lobster industry as the State's most valuable inshore fishery for a single species (valued at $1.5 million in 1958). It is felt that detailed investigations are needed, however, to determine if local populations can withstand additional fishing pressure from skin divers,,who now constitute one-half of the licensed lobstermen and who account for 12 percent of the total catch in 1958 (0.5 million pounds).

Massachusetts inshore fisheries for shellfish have witnessed a general decline in over-all production during the ten-year period prior to 1959, the Advisory Commission report continues, but the Commonwealth is rapidly losing its position as a leading shellfish producing state for reasons that need not exist.

The Commission points to inadequate State assistance, lack of effective management by cities and towns, and the extent of coastal pollution as the reasons for this decline.

Salt-water sportfishermen now number close to one-quarter million individuals, the report goes on, with an annual expenditure of nearly $20 million for equipment and services. Lack of access to coastal areas is cited as the prime problem confronting this fishery, but the sportfishermen's request to bar all commercial seining within territorial waters is declared "unjustified from a conservation point of view."

The report also takes note of the 10,000 active skin divers in Massachusetts and deplores the activities of a few irresponsible individuals who have encouraged criticism towards the group as a whole. The Commission urges that the talents and desires of skin-diving groups be utilized more extensively in programs of marine research and management and that their activities receive official recognition at the State level.

Pollution from boats and boat facilities was recognized as a growing problem to some local fisheries, but, the report continues, "pollution from boating is insignificant in comparison with the discharge of sewerage and industrial waste from coastal communities."

The Commission emphasizes, however, the urgent need for adequate information on the State's numerous bays and estuaries upon which a proper policy could be based.

Among the principal recommendations included in the report were the following:

1. That Massachusetts recognize the expansion of the marginal sea for fishery purposes as "inevitable" and enact legislation which would automatically extend its jurisdiction in the event of international action to this end.

2. That the present Commission be instituted as a permanent Advisory Commission on Marine Fisheries representative of commercial and recreational interests along the coast. "It has become manifestly evident that problems relating to marine fisheries must constantly occur but can often be resolved most effectively by a group representing the various interests involved," the Commission advises.

3. That the Director of Marine Fisheries, subject to certain restrictions, be given full administrative control over the fisheries. The Commission sharply criticized program or policy changes by individual legislative petition describing this method as "cumbersome, inequitable, and costly to the fishery itself."

4. That an accelerated program of research and management be authorized, particularly in the estuarine waters of the Commonwealth. The Commission declares that if such requests are not permitted, "Massachusetts may soon witness its decline as a leading producer of recreational and commercial products from the sea."

5. That the University of Massachusetts, and other institutions, place on their faculty sufficient personnel to initiate programs of research, education, and extension in the broad field of fisheries. The Advisory Commission report points to the serious shortage of professional marine biologists, the need for academic teamwork in any state estuarine program, and the desirability of effective programs of extension in order to promote unity among salt-water groups and provide technological assistance to the industry.

Other recommendations included in the Commission's comprehensive report were the following:

Urging that active and progressive measures are required to insure the future well-being of the Massachusetts fisheries, the Commission recommended a matching-fund program at the Federal-state level to assist the states in building up a competent marine fisheries research and management program.

As "study projects" for the future, the Commission recommended: Consideration of the State's coastal wetlands before they are lost irrevocably to commercial exploitation; the recodification of the State's complex marine fisheries laws and an investigation of the need for additional shellfish purification plants in Massachusetts.

The Commission further recommended, as a part of the proposed program, the establishment of a Marine Fisheries Fund, financed by license and other fees, to be expended exclusively for marine fisheries research programs.

It also recommended that cities and towns be authorized to appoint supervisors of marine fisheries with broad powers over all salt-water activities within their communities.

Among accelerated programs of research and management, the Commission suggested: marine research stations at Salem and Martha's Vineyard; a marine research and law enforcement vessel to work offshore within territorial waters; and an intensified program of applied research and management relative to all species of importance to commercial and sport fishermen.

The Commission further recommended that the Commonwealth undertake "an immediate program" of public access to the salt water because the rapid development of the coastal and shoreline areas "constitutes a liability to the recreational boating and sport fishing public."

The Commission further urged "an adequate marine fisheries budget for administration research and management," citing that $100,000 annually is not enough for a 50-million-dollar industry.

Finally, the Commission recommended adequate programs of marine law enforcement saying that research and management are only as effective as are the means for effective law enforcement.

North Atlantic Fisheries

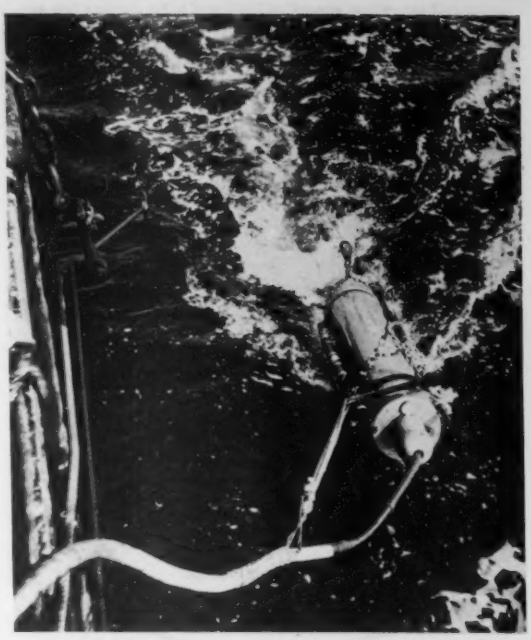
Exploration and Gear Research

UNDERWATER TV AIDS STUDIES TO IMPROVE DESIGN OF OTTER TRAWLS:

M/V "Delaware" Cruise 61-3: In order to observe the fishing action of a No. 41 standard manila otter trawl fished from the U. S. Bureau of Commercial Fisheries exploratory fishing vessel Delaware, the Bureau's underwater television unit was used during a one-week period ending March 3, 1961. This was the third in a series of cruises designed to obtain data on the otter trawl during fishing operations in support of efforts to design improved nets. Operations were conducted over the 12- to 15-fathom sand bottom on the southern part of Stellwagen Bank (42°13' N., 70°15' W.). Previous gear observation cruises, in July 1959 and in June 1960, used this same area at a time of year when planktonic turbidity severely curtailed visibility of the net. The winter schedule, while affording the advantage of lower turbidity, resulted in restriction of activity due to decreased light levels and stormy weather.

As in previous cruises, a 16 mm. motion picture camera was positioned at the shipboard television monitor to record net configurations, movements, and fish behavior. The television camera was lowered from the vessel down a trolley cable attached at various points on the headrope to give views of several sections of the trawl. When attached near the middle a composite view of the headrope bosom and footrope bosom was transmitted to the vessel. Views of the lateral parts of the trawl were obtained by fastening the trolley cable to positions on the wings. A total of 600 feet of film was taken of the headrope and wing.

Techniques in maneuvering the camera on the net were considerably improved over previous operations. Species represented in the catches consisted of winter skates, yellowtail and winter flounders, lumpfish, ocean pout, long-horned sculpins, and the American lobster.



Underwater TV camera unit entering water on cable attached to headrope of otter trawl. Conductor TV cable is in the foreground.

Oceanography

ATLAS OF NORTH ATLANTIC OCEAN PLANNED:

Drawing a detailed picture of the North Atlantic Ocean from top to bottom and from the equator to the pole will be one of the American Geographical Society's major projects in the decade ahead.

The project is a cooperative international effort that involves the production of an atlas embracing the physical, geological, geographical, and biological aspects of the ocean. The first of its kind in the United States, the project was outlined in the Society's annual report released early this year.

Preliminary phases of the program were begun early in 1960. Since then, a general

base map and 16 sectional base maps of the North Atlantic have been, or soon will be, completed. These are being distributed to scientists in a wide range of specialties here and abroad. The scientists will plot their own findings--distributions of fish and plant life, temperatures, depths, winds, currents, bottom sediments, etc.--and then return the maps to the Society for evaluation, editing, and publication. Individual maps and map series will be published as they are completed. Now called the Serial Atlas of the Marine Environment (North Atlantic and Arctic Basin), it will serve as a model for atlases covering other oceans.

The President of the Society said the atlas would provide an essential tool for basic research. "Information about the oceans is piling up at such an unprecedented rate that the individual scientist can't keep up with it, and much of it goes unpublished or unreported," he said. "The atlas will integrate this data and point up interrelationships and variables that otherwise might be undetected. It will help to indicate the most scientifically profitable directions that future research ought to take; at the same time, it will also help to guide man in wisely exploiting the seas' resources."

Financial support for the project is being sought largely through corporations and foundations in this country, a number of which already have contributed substantial sums, the Society's President stated. "Long before it is completed," he said, "the atlas should be of fundamental value to many industries, including the commercial fisheries, transportation, communications, and oil industries."

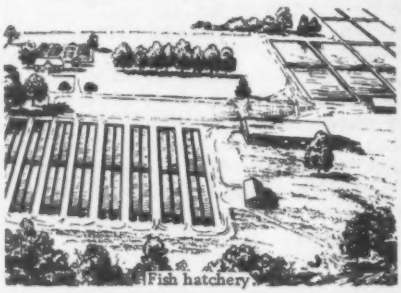
The atlas project, under the general auspices of the Society, has the guidance of an advisory panel of the National Academy of Sciences-National Research Council. Scientific bodies in Canada, Great Britain, and Europe have endorsed it, and cooperation is also expected from Soviet scientists.

The American Geographical Society, New York City, was founded in 1852 and is the oldest geographical society in the United States.

Oregon

METHODS OF RELEASING HATCHERY-REARED SILVER SALMON STUDIED:

Between late March and early February 1961, 100,000 small silver salmon were taken by boat on the first step of the usual yearling silver's exodus down the Columbia River to the rich feeding grounds of the Pacific. The salmon were one-third of a 300,000-fish test release originating from the Oregon Fish Commission's Cascade Hatchery on Eagle Creek, a short distance above Bonneville Dam.



Fish hatchery

In an effort to develop better methods of releasing hatchery-reared salmon fingerlings, and to obtain additional information on the mortality of downstream migrating salmon fingerlings passing over Bonneville Dam, the 300,000 silver salmon yearlings involved were divided into three equal groups, each of which was handled in a different manner. Every fish was finclipped in a fashion that will identify it as to test group.

The first 100,000 fish were trucked downstream and released near the mouth of Tanner Creek immediately below Bonneville Dam. The second lot was released directly into Eagle Creek at Cascade Hatchery, the usual practice. The third lot was

transferred via tank truck into a screened-box barge designed for the purpose, and towed by boat downriver through the Bonneville locks. These fish were released into the Columbia just below the big dam.

The yearlings released at the Cascade Hatchery face the hazards of passing Bonne-

Bonneville Dam fish ladder. (A fish ladder is a series of adjoining pools to help fish get past dams or falls.)

ville Dam in addition to other dangers of the downstream trip. The fish will pass the dam by devious routes. Some will use the regular fishway designed for adult fish bound for the spawning grounds upstream. Others will go through the turbines, over the spillway, or through the locks while boats are being put through.

Although some of the males of this release will return as jacks this coming fall, it will be the fall of 1962 before the main body of mature fish returns to Eagle Creek. The returning adults will be trapped at the Cascade Hatchery racks during regular egg-taking operations. The numbers of fish in each of the three fin-marked test groups will be recorded at that time. Sampling by Fish Commission personnel will probably locate some of the marked fish in the catches of commercial and sports fishermen prior to the return to Eagle Creek during the 1962 spawning run.

* * * * *

SILVER SALMON REARED IN LAKES TO HELP RESTORE DEPLETED STOCKS:

Another step toward the rehabilitation of Oregon's coastal salmon runs was taken recently with the release by the Oregon Fish Commission of 130,000 silver salmon fingerlings into the Tenmile Lakes system in northern Coos County. Hall Lake received 100,000 of the small salmon with the balance going into Schuttpelz Lake.

Salmon fingerlings.

This is the second Fish Commission planting of silvers into the coastal lake chain. In the spring of 1960, 106,000 fingerling silvers were released into Hall Lake on an experimental basis to determine the feasibility of using the Tenmile system as an extensive natural pond rearing facility.

A Fish Commission biologist, in charge of the Tenmile operation, reported that fingerlings released into these waters in 1960 grew from about $1\frac{1}{2}$ inches in length to an average of 5 inches within a period of 11 months. This rate of growth, under natural conditions and with no supplemental feeding, is an indication of the good fish-producing potential of these waters.

The Commission's director of research, has tabbed the Tenmile system as one of the bright spots in the current salmon situation. He pictures the chain as an extensive series of rich, potentially highly productive natural rearing ponds where vast numbers of salmon could be produced at little cost other than for collecting and incubating the eggs.

Jack salmon (early maturing males) from last spring's release are expected to appear this fall, but it will be the following year before the main body of surviving adults return to the outfall below Hall Lake.

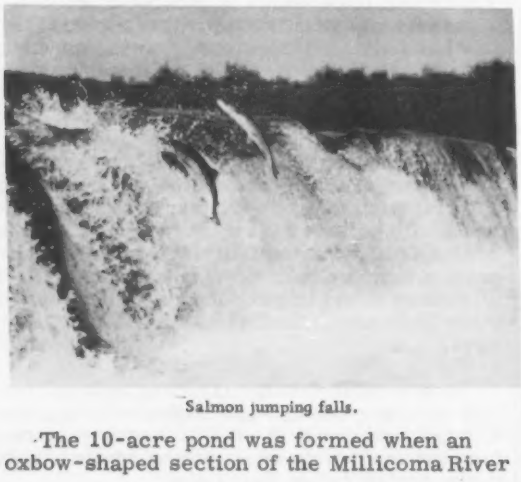
A trap will be constructed by the Commission at the lower end of Hall Lake where the outlet, flumed by the State Highway Department to stabilize the channel, offers an obstruction to ready passage. There returning adults will be captured and examined for identifying fin clips; also eggs will be taken for incubation to provide a continuous supply of fingerlings to keep the Tenmile Lakes stocked.

A screen located at the outlet below Hall Lake was recently positioned to prevent the young silvers from escaping until such time that water levels drop sufficiently to allow replacement of a downstream migrant trap damaged by recent floods. This trap is used to collect for fin clipping for future identification the yearling fish moving downstream to the ocean. It also provides for checking the rate of growth, physical condition, and the survival of fingerlings, so that more and better quality fish can be produced at lower cost.

* * * * *

SUCCESSFUL POND REARING MAY HELP REBUILD RUNS OF SILVER SALMON:

Nearly 80,000 young silver salmon were making their way down Oregon's Millicoma and Coos Rivers toward the sea following their release early in March 1961. The plant represents the successful climax to the second year of cooperative effort between the Oregon Fish Commission and a private lumber company in pond rearing of salmon at Millicoma Pond in Coos County.



Salmon jumping falls.

The 10-acre pond was formed when an oxbow-shaped section of the Millicoma River was cut off by a logging road fill constructed by the lumber company. Inlet and outlet structures were positioned to allow water control, creating an excellent fish-rearing pond behind the fill at a minimum of cost.

The Oregon Fish Commission's Director of Fish Culture indicated that survival of the fingerlings in the rearing pond was high--about 80 percent of the 101,000 small silver salmon placed in the pond during the latter part of June 1960. Between that time and the release date in March this year the young silver salmon had grown from about 3 inches in length to an average of 6 inches. The fish were reared from eggs taken from Coos River system silver salmon. The 79,900 fingerlings released were in excellent physical condition, the natural food supply in the pond having been supplemented by regular feeding with the Commission's Oregon pellet, a nutritionally-complete fish ration developed in cooperation with Oregon State College scientists.

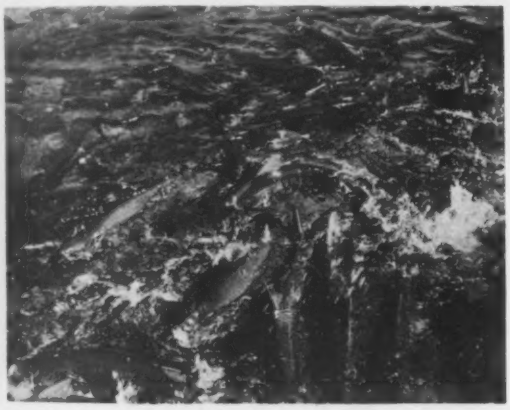
This is the second season Millicoma Pond has been used to rear salmon. Last year 211,000 fingerlings were held in the pond but a flood-damaged screen at the outlet allowed many of the fish to escape before they could be marked and counted. At least 80 jacks from this first brood of silvers returned to the pond outlet last fall. Both mature males and females are expected in numbers this fall as a result of the first year's release. Also scheduled to appear are numbers of jacks from the March 1961 release. All fish were fin-clipped for identification.

The Millicoma River is part of the Coos River system, the confluence of the two streams being about six miles above the Coos River's mouth on Coos Bay. By building up Millicoma River salmon runs, it is believed that sufficient eggs can be obtained from a proposed Millicoma fishing rack to provide adequate numbers of pond-reared fish to stock both the Millicoma as well as the South Coos River. Under such circumstances it would be possible to remove the Commission's rack from the South Coos, allowing natural spawning to take place in the limited suitable spawning area above the rack site, thus supplementing the proposed releases into this stream of yearling silver salmon reared at Millicoma Pond.

During 1957, splash dams on the South Coos above the rack were removed by the

owners. The company undertook this stream clearance project not only to give anadromous fish access to upstream spawning areas but also to halt the scouring of stream bed spawning gravels by splashing operations.

Plans for the 1961 season call for placing 0.5 million young silvers into the rearing pond, the most ambitious rearing project yet undertaken at this impoundment. This fall will see the return of mature fish from the first year's operation plus jacks from this year's release. There were encouraging returns last fall of jacks from the first brood reared in Millicoma Pond.



Salmon in hatchery pool.

In addition to increasing the numbers of fish to be reared at the Coos County pond this season, the Commission plans to establish a modern incubation station in the vicinity. Here eggs taken from adult silvers returning to Millicoma Pond will be handled to provide successive crops of young fish for stocking the impoundment. In view of the success of pond-rearing efforts at Millicoma, the Commission plans to concentrate efforts there and restrict present activities at the Coos Hatchery. This plan provides for the most productive use of the available fish and facilities.

The Oregon Fish Commission is fully aware of the need to rebuild the coastal salmon runs, its Director emphasized. The Millicoma development is part of the overall plan. Another step that has been taken in this direction includes the release of silver salmon in the Hall-Schuttpelz Lakes section of northern Coos County's Tenmile Lakes chain. Research has shown this lake system possesses a high potential, presently unused, for natural rearing of silver salmon fry to yearling size at no additional cost.

Restoration of spawning areas through the removal of log jams from debris-choked coastal streams and a comprehensive program of research involving the use of coastal lakes as natural rearing waters are among other Fish Commission activities directed toward the restoration of salmon production in Oregon's coastal waters.

Preservation

RADIATION OF FOODS SAFE:

A Stanford Research Institute team in Menlo Park, Calif., searching for hazards inherent in the sterilization of foods by irradiation, has concluded that radioisotope activation is not harmful.

The scientists said, "The quantity of radioactivity in treated food is small compared with natural environmental radioactivity, and food preservation can proceed safely."

The U. S. Army Quartermaster Food and Container Institute suggested the study.

An Institute spokesman said, "When food is subjected to high-energy radiation, radioactive isotopes may be produced in the food. Some isotopes have a half-life of only a few seconds; others emit radiation for years.

"It was essential to know if isotopes are produced by radiation sterilization of foods and in what quantity, and if they remained radioactive for significant periods," the spokesman said.

To find the answers, the researchers irradiated a variety of separate elements present in foods and examined them for induced radioactivity. This was repeated with whole foods--beef, bacon, shrimp, chicken, and green beans.

Container materials were irradiated and measured for induced radioactivity. A variety of radiation sources was used in each case, including cobalt-60, cesium-137, spent reactor fuel elements, X-rays, and high-energy electrons.

The research team pointed out that almost all "clean" food has trace amounts of radioactivity. This results from the naturally-occurring isotopes, potassium-40 and carbon-14.

The object of the project was to find radioactivity above these traces.

Small quantities of sodium-22 and rubidium-84, produced by high-energy X-rays and electron irradiations, were the only induced radioactivity found in the irradiated samples of whole food.

Many of the irradiated food elements, however, showed low levels. Almost all were from isotopes that have short half-lives (minutes to hours) and are not common food elements.

In no case were levels found above the recommended limits for drinking water by the team of scientists from the Institute.

All forms of containers were tested and found safe by the research team. (Food Field Reporter, March 13, 1961.)

Salmon

ALASKA'S BRISTOL BAY RED SALMON RUN FORECAST FOR 1961:

It is estimated that the total red salmon return to Bristol Bay in 1961 will be within plus or minus 30 percent of a most probable total of 22 million fish. This estimate assumes no Japanese fishing on the returning mature salmon in 1961 and average Japanese fishing on the immature salmon in 1960.

About two-thirds of the return of red salmon to Bristol Bay in 1961 will have spent three years in the ocean and thus will be large fish. The over-all average size will be about 12 fish to pack a case of 48 one-pound cans of salmon.

A very poor return of about 1.3 million fish is indicated for Nushagak district; a good return of about 15 million fish to the Naknek-Kvichak; a good return of over 2 million fish to the Egegik, although the cycle analysis upon which this is based is relatively weak; and an excellent return of over 3 million fish to the Ugashik, although in this instance, also, the margin of error is considerable and alternative analysis indicates reason for consideration of a 2-million figure.

There is a slim chance that the young fish which went to sea in the spring of 1959 did not visit the central Aleutian area in the summer of 1960. If that is the case, it would be a behavior pattern not experienced in the preceding five years of fishing. But it remains a possibility which may be checked by further fishing near the Aleutian Islands in the spring of 1961.

This is a forecast prepared jointly by the Alaska Department of Fish and Game, the Bureau of Commercial Fisheries, and the Fisheries Research Institute of the University of Washington. Scientists from these three agencies have exchanged and studied all pertinent data and believe that the forecast is the best that can be made.

* * * * *

NORTHWEST PACIFIC STATES PROPOSE COORDINATED REGULATION AND MANAGEMENT:

A "Summit on Salmon" meeting was held by the Governors of Washington, Oregon, and Idaho on February 6, 1961, in Boise, Idaho. Editorial comments in a Pacific Northwest newspaper indicated agreement was reached on:

(1) The establishment of a Governors' Columbia River Fisheries Management Committee.

(2) The State fisheries agencies have been directed to develop a joint program of regulation and management of the fishery resource.

(3) Putting additional "pressure on Congress and the Federal agencies for maximum protection for the fishery. Additional Federal research money and greater activity on the part of the states in regulation of the international deep-sea fishery."

The Governors also took under consideration the proposal for a Columbia River Interstate Salmon Commission, which apparently would be the outgrowth of an interstate compact between the three States for the purpose of regulating the fisheries as a unit and to obtain revenues from utilities, State general funds, foundations and grants, and from Federal appropriations.

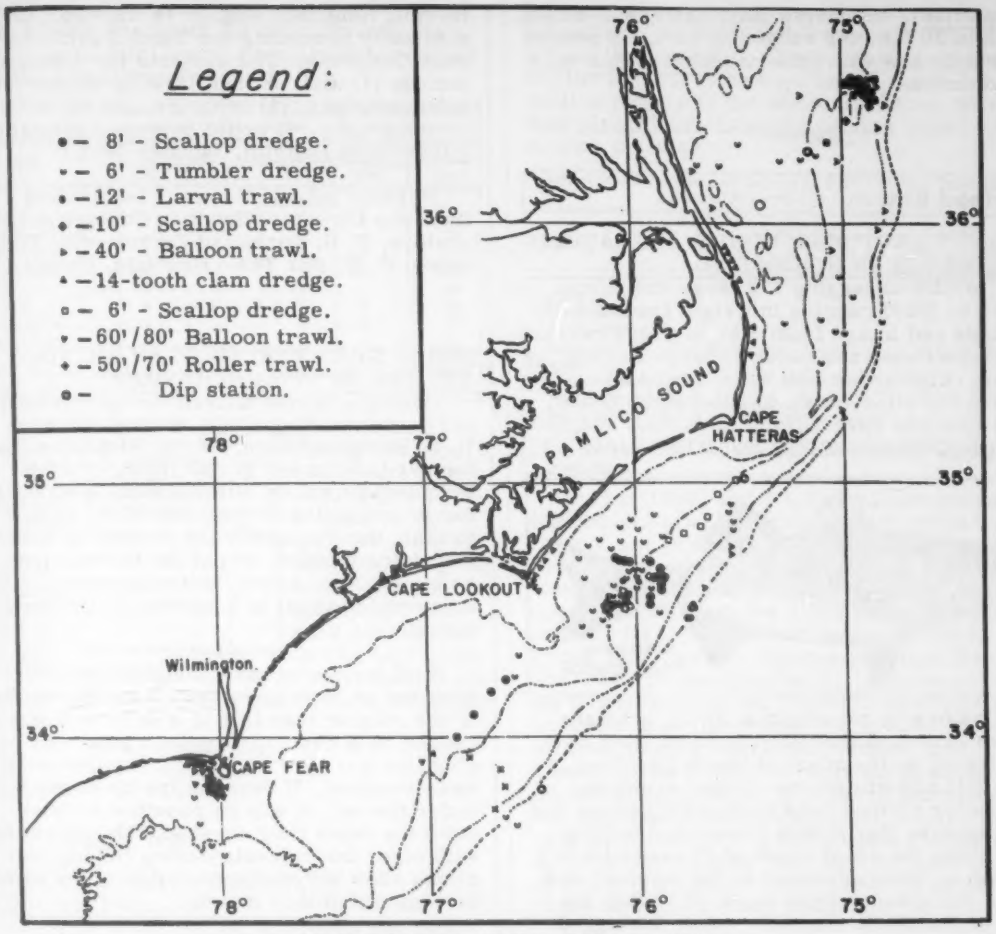
South Atlantic

Exploratory Fishery Program

FISH AND SHELLFISH RESOURCES OFF NORTH CAROLINA COAST SURVEYED:

M/V "Silver Bay" Cruise 29: On March 22, 1961, the M/V Silver Bay completed a 24-day exploratory fishing cruise along the Continental Shelf and Slope off North Carolina. A 6-foot tumbler dredge, 14-tooth Fall River clam dredge, 12-foot larval fish trawl, 8- and 10-foot modified Georges Bank-type scallop dredges and shrimp and fish trawls were used at 176 exploratory stations.

SCALLOPS: Calico scallops (Pecten gibbus) were relocated in 21 to 25 fathoms off Core Banks where catches of up to 16



M/V Silver Bay Cruise 29 (Feb. 27-Mar. 22, 1961).

bushels per half hour tow and yielding 4½ pints of meats per bushel were made with a 6-foot tumbler dredge. A marker buoy was placed in the area and direct notification was made to the North Carolina fleet. These vessels started fishing within a few days and later reported catches of up to 400 bushels per 12 hours of fishing. Dredging was continued north of Cape Hatteras where calico scallops disappeared from the catches at about latitude 35° 47' N. Sea scallops (Pecten grandis) appeared in the catch at about latitude 36° 30' N., where catches of up to 2¼ bushels per 30-minute tow were made. These scallops averaged 5½ inches (greatest diameter) and yielded 4 pints of meats per bushel (120 count).

HARD CLAMS: Catches of medium-size hard clams (2½ to 4½ inches) off the Cape Fear River ranged up to 44 individuals per 15-minute tow. One live clam and dead shell were taken north of Cape Lookout Shoals. Dredging in 4 to 6 fathoms north of Cape Hatteras produced only dead shells.

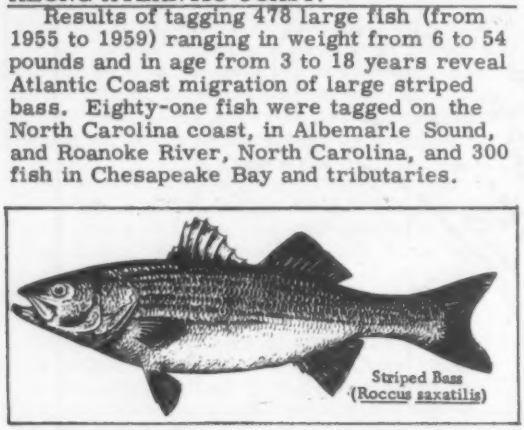
FISH: Fish trawling north of Cape Hatteras produced small catches of summer flounder (Paralichthys dentatus) up to 90 pounds per hour tow and a few silver hake or whiting (Merluccius bilinearis). One 60-minute tow in 23 fathoms with a 40-foot net produced 5,000 pounds of sea robins (Prionotus sp.) and one in 4½ fathoms produced 2,785 pounds of spiny dogfish (Squalus

acanthias). In Onslow Bay, catches of mixed fish in 20 fathoms ranged up to 1,966 pounds per hour tow with puffers (Sphaeroides sp.) predominant.

Striped Bass

TAGGING RETURNS REVEAL MIGRATIONS ALONG ATLANTIC COAST:

Results of tagging 478 large fish (from 1955 to 1959) ranging in weight from 6 to 54 pounds and in age from 3 to 18 years reveal Atlantic Coast migration of large striped bass. Eighty-one fish were tagged on the North Carolina coast, in Albemarle Sound, and Roanoke River, North Carolina, and 300 fish in Chesapeake Bay and tributaries.



Striped Bass (Roccus saxatilis)

Catches by commercial and sport fisheries indicated that large striped bass concentrated on the coast of North Carolina in late fall and winter, on or near spawning areas for striped bass in North Carolina and Chesapeake Bay in late winter and spring, and along the coast north of Chesapeake Bay as far as Massachusetts in the summer and fall. Recaptures were made of 19 fish tagged on the North Carolina coast; 23 tagged in Albemarle Sound and the Roanoke River, North Carolina; 27 tagged in Chesapeake Bay and its tributaries; and 1 tagged in the Thames River, Connecticut. Some fish were recaptured near the tagging location but most of them migrated along the coast and were caught in other concentration areas during the season of greatest fishing pressure, according to U. S. Bureau of Commercial Fisheries biologists.

Tuna

PACIFIC TUNA BIOLOGY CONFERENCE:

An informal conference on the biology of Pacific tuna will be held at the University of Hawaii, Honolulu, August 14-19, 1961, immediately preceding the Tenth Pacific Science Congress. The subjects for discussion include (1) distribution, (2) migrations, (3) subpopulations, (4) behavior, and (5) tuna oceanography. (Pacific Science Association Information Bulletin, January 1961.)

Further information may be obtained from the Director, Honolulu Biological Laboratory, U. S. Bureau of Commercial Fisheries, P. O. Box 3830, Honolulu, Hawaii.

* * * * *

SONAR GEAR TESTED AS AN AID TO STUDIES ON TUNA BEHAVIOR:

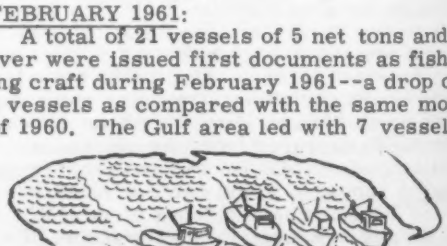
During a cruise aboard the commercial purse seiner West Point, biologists of the U. S. Bureau of Commercial Fisheries Biological Laboratory at San Diego evaluated the possible utility of the Simrad sonar gear for investigation of tuna behavior. In particular, the biologists are interested in determining whether or not the thermocline, or the plane at which the temperature makes a decided change, is a barrier to their movements.

Staff members have designed and constructed an instrument which can be attached to the ring or lead line of a seine and will record on a chart the depths reached by the ring line and the time at which those points were reached. If tuna escape by swimming under the net, it will be possible to determine the depth they reached. Measurements with other instruments during fishing operations show the characteristics of the water through which they moved.

United States Fishing Fleet 1/ Additions

FEBRUARY 1961:

A total of 21 vessels of 5 net tons and over were issued first documents as fishing craft during February 1961--a drop of 5 vessels as compared with the same month of 1960. The Gulf area led with 7 vessels;



1/Includes both commercial and sport fishing craft.

the New England and Pacific areas followed with 4 each; the South Atlantic, Puerto Rico, Chesapeake, and Great Lakes areas accounted for the remaining 6 vessels.

Table 1 - U. S. Vessels Issued First Documents As Fishing Craft By Areas, February 1961

Area	February		Jan.-Feb.		Total
	1961	1960	1961	1960	1960
	(Number)				
New England	4	1	7	2	34
Middle Atlantic	-	3	-	4	13
Chesapeake	1	4	4	9	76
South Atlantic	2	7	3	10	45
Gulf	7	3	18	7	85
Pacific	4	7	9	9	138
Great Lakes	1	1	1	1	17
Puerto Rico	2	-	2	-	-
Total	21	26	44	42	408

Note: Vessels assigned to the various areas on the basis of their home ports.

Fishing craft issued first documents during the first two months of 1961 totaled 44--2 vessels more than were reported during the same period of last year. Vessels documented in the Gulf area comprised 41 percent of the total during the 1961 two-months period.

Table 2 - U. S. Vessels Issued First Documents as Fishing Craft By Tonnage, February 1961

Net Tons	Number
5 to 9	8
10 to 19	3
20 to 29	1
30 to 39	4
40 to 49	3
60 to 69	1
70 to 79	1
Total	21

U. S. Foreign Trade

EDIBLE FISHERY PRODUCTS, JANUARY 1961:

Imports of edible fresh, frozen and processed fish and shellfish into the United States during January 1961 increased by 9.3 percent in quantity and 10.5 percent in value as compared with December 1960. The increase was due primarily to higher imports of groundfish fillets (up 9.4 million pounds) and frozen albacore (up 3.1 million pounds), and to a lesser degree, an increase in the imports of canned sardines in oil. The increase was partly offset by a 2.9-million-pound decrease in the imports of frozen tuna other than albacore and a 1.6-million-pound drop in canned tuna in brine.

Compared with January 1960, the imports in January this year were up by 4.2 percent in quantity and 10.5 percent in value due to higher imports of frozen albacore tuna (up 2.9 million pounds), groundfish fillets (up 8.9 million pounds), and frozen shrimp (up 3.7 million pounds). Compensating, in part, for the increases was a drop of about 7.2 million pounds in the imports of tuna other than albacore and canned salmon (down 4.5 million pounds).

United States Imports and Exports of Edible Fishery Products, January 1961 with Comparisons

Item	QUANTITY			VALUE		
	Jan.		Year	Jan.		Year
	1961	1960	1960	1961	1960	1960
	(Millions of Lbs.)			(Millions of $)		
Imports:						
Fish & shellfish: Fresh, frozen, & processed 1/	85.1	81.7	1,011.2	27.4	24.8	304.8
Exports:						
Fish & shellfish: Processed only 1/ (excluding fresh & frozen)	2.5	6.6	48.7	1.1	1.8	19.2

1/Includes pastes, sauces, clam chowder and juice, and other specialties.

During 1960, about 1,011 million pounds (valued at about $305 million) of edible fresh, frozen, and processed fish were imported. Imports in 1960 as compared with 1959 were lower by 5.5 percent in quantity and 1.6 percent in value from the 1,071 million pounds valued at $310 million imported in 1959. From 1959 to 1960 imports of groundfish and other fillets dropped 33.1 million pounds, all frozen and canned products derived from tuna and tuna-like fishes were down 10.7 million pounds, and fresh, frozen, and canned salmon imports were down about 28.3 million pounds. In 1960 an increase in the imports of fresh and frozen American and spiny lobsters of 5.0 million pounds and a 6.8-million-pound increase in the imports of shrimp partially offset the drop in imports of other fishery products.

United States exports of processed fish and shellfish in January 1961 were lower by 47.5 percent in quantity and 45.0 percent in value as compared with December 1960. Compared with the same month in 1960, the exports this January were down by 61.7 percent in quantity and 38.9 percent in value. The lower exports in January this year as compared with the same month in 1960 were due mainly to sharply lower exports of California sardines and squid. Exports of edible fishery products in 1960 amounted to 48.7 million pounds valued at $19.2 million, a drop of 28.4 percent in quantity and 15.8 percent in value as compared with 1959.

* * * * *

IMPORTS OF CANNED TUNA IN BRINE UNDER QUOTA:

The quantity of tuna canned in brine which may be imported into the United States during the calendar year 1961 at the 12½-percent rate of duty is limited to 57,114,714 pounds. The quota for 1960 was 53,488,330 pounds. Any imports in excess of the quota are dutiable at 25 percent ad valorem.

Imports from January 1-March 4, 1961, amounted to 7,475,964 pounds, according to data compiled by the Bureau of Customs.

Imports in 1960 for the period January 1-February 27 amounted to 5,168,179 pounds.

Virginia

ROOFING TILE TO TRAP OYSTER DRILLS:

"Roofing tile commonly used in some parts of the world to protect houses against weather, may prove useful in protecting oysters from screwborers," a biologist of the Virginia Fisheries Laboratory reported on March 31, 1961. Screwborers or oyster drills, as they are sometimes called, have for many years been considered the number one enemy of oysters on Eastern Shore's (between Cape Charles and Maryland State line) vast planting grounds. Oystermen on that peninsula have spent much time and money to control this predatory snail which makes holes through the shells of small oysters and consumes the meat.

Eastern Shore planters frequently spend as much as 10 years to build up a good seed rock. This involves getting a firm crust of shells to support the seed oysters and to defend the young oysters against screwborers and other predatory animals. The most efficient device for protecting the grounds from creeping animals has been the drill traps, made of chicken wire and baited with young oysters. In recent years the cost of making these traps, baiting them, and fishing them has risen so high that many oystermen have debated whether to give up the whole idea.

Scientists from the Virginia Fisheries Laboratory are bringing to the Eastern Shore a new type of trap, which was developed in England. It is extremely simple and cheap, consisting merely of roofing tiles spaced at short intervals around and over the oyster beds. Planters estimate that wire-bag traps baited with seed oysters cost about 63 cents each, and must be fished each week, otherwise the drills will eat up all of the bait. Roofing tiles, on the other hand, cost approximately 12 cents each and require no baiting. Furthermore, it is not necessary to fish tile traps at such frequent intervals. Although two-week intervals is recommended, the oysterman will lose nothing if he finds it impossible to fish them that frequently. They also make it easier to destroy more drills.

"The use of tiles for trapping oyster drills is based on information scientists have gained about these predators," the biologist stated. "They seem to need an elevated, shaded position for depositing their spawn, and during the spawning period they tend to gather together in large numbers. Curved roofing tile is ideal for these purposes, and the drills make good use of them.

He pointed out that it is necessary for the tiles to age in the water several months before they are most efficient, but they will begin attracting drills within a few weeks after placing them on the bottom. Besides the economy and ease of handling tile drill traps, they are more efficient than wire-bag traps because they collect large numbers of drill egg cases which can also be destroyed. Since egg cases contain around 12 eggs per capsule and the capsules are thickly placed in a small area, the destruction of egg cases is more effective, actually, than the destruction of the larger drills.

It will be 2 or 3 years before the success of using tiles for controlling drills can be evaluated. They are not considered to be barriers but rather traps for keeping down the drill population. The spacing of the tile around beds of oysters will not prevent some drills from passing through, but it will attract many which can be removed and, therefore, save many thousands of bushels of oysters.

"The screwborer was introduced into the British Isles about 50 years ago, when Virginia oysters were shipped to England," the biologist reported. "They have not spread widely from the areas where they were introduced but have increased in number until they have become a dangerous pest, and the British have made great efforts to control them."

These destructive marine snails go by several names in this country. Eastern

Shoremen usually call them "screwborers." In some places they are called "screwdrivers" and scientists more often refer to them as "oyster drills." The English, on the other hand, call them "tingles." Their scientific names are Urosalpinx cinerea and Eupleura caudata, two different snails, both of which are destructive of oyster spat and young oysters.

* * * * *

QUALITY OF 1960/61 OYSTER HARVEST GOOD:

According to careful records made at the Virginia Fisheries Laboratory for the past six years, oysters from tidewater Virginia have been fatter during the 1960/61 season than any time since the study began and are probably the best since 1948.

Oysters are a treasure, with or without the pearl. A nutritive treasure, that is.

The Laboratory's mollusc physiology unit began keeping records on the fatness of oysters in 1955. A system has been devised for measuring the plumpness of oysters and comparing the data obtained from year to year, and from one area to another.

The Laboratory's research is designed to determine what factors affect the fatness of oysters. Through carefully controlled experiments, it has been found that oysters will fatten on vitamin-enriched flour and even on pure corn starch which contains no vitamins or minerals. These foods were fed to the experimental oysters at a rate of about one pound for every 45,000 gallons of water.

The biologists are interested in finding out why oysters fattened better than usual in the York and Rappahannock Rivers this year. In answering this question it is necessary to determine what foods oysters eat, whether they require living food, and whether it is possible that they get a great deal of their nourishment from non-living debris on the bottom and in the water. This will necessitate a study of the oyster grounds to find out how they control oyster growth and why they are more productive at one time than another.

Wholesale Prices, March 1961

The March 1961 wholesale price index for edible fishery products (fresh, frozen, and canned) at 131.9 percent of the 1947-49 average dropped slightly from the preceding month (0.8 percent), but was up about 6.9 percent from March 1960. Between mid-February and mid-March this year lower prices for shrimp, oysters, frozen haddock fillets, and frozen dressed salmon more than offset higher prices for fresh drawn haddock, fresh haddock fillets, frozen dressed salmon, fresh round whitefish, and canned Maine sardines. From March a year ago to this March, all the fishery products making up the fishery index were priced higher except for fresh-water fish.

The fresh and frozen drawn, dressed, and whole finfish subgroup index for March this year increased less than one percent from the preceding month. Higher prices for haddock ex-vessel at Boston, frozen dressed Pacific halibut, fresh round whitefish, and fresh yellow pike just about balanced out lower prices for dressed king salmon and drawn whitefish. When compared with March last year, the subgroup index for this March rose 8.6 percent due to higher prices for frozen dressed halibut (up 12.0 percent), fresh drawn haddock (up 4.7 percent), and frozen dressed king salmon (up 12.5 percent). These increases were only partially offset by lower prices for fresh round and drawn whitefish and yellow pike.

From February to March this year, the fresh processed fish and shellfish subgroup index declined 3.2 percent due to a 2.8-percent drop in the fresh shrimp price at New York

Old Fulton Fish Market, New York City (original market).

Remodeled Fulton Fish Market completed in 1939.

Table 1 - Wholesale Average Prices and Indexes for Edible Fish and Shellfish, March 1961 With Comparisons

Group, Subgroup, and Item Specification	Point of Pricing	Unit	Avg. Prices 1/ ($)		Indexes (1947-49=100)			
			Mar. 1961	Feb. 1961	Mar. 1961	Feb. 1961	Jan. 1961	Mar. 1960
ALL FISH & SHELLFISH (Fresh, Frozen, & Canned)					131.9	133.0	130.9	123.4
Fresh & Frozen Fishery Products:					146.8	148.9	146.2	137.6
Drawn, Dressed, or Whole Finfish:					161.3	160.2	162.7	148.5
Haddock, lge., offshore, drawn, fresh	Boston	lb.	.12	.10	122.4	100.5	125.2	116.9
Halibut, West., 20/80 lbs., drsd., fresh or froz.	New York	lb.	.33	.32	101.1	99.0	92.8	90.3
Salmon, king, lge. & med., drsd., fresh or froz.	New York	lb.	.88	.91	196.6	205.0	202.2	174.7
Whitefish, L. Superior, drawn, fresh	Chicago	lb.	.70	.75	173.6	186.0	179.8	195.8
Whitefish, L. Erie pound or gill net, rnd., fresh	New York	lb.	.70	.63	141.6	126.4	126.4	144.7
Yellow pikæ, L. Michigan & Huron, rnd., fresh	New York	lb.	.70	.69	164.2	161.8	152.4	181.8
Processed, Fresh (Fish & Shellfish):					150.1	155.1	145.9	142.2
Fillets, haddock, sml., skins on, 20-lb. tins	Boston	lb.	.42	.34	141.2	114.0	132.7	117.4
Shrimp, lge. (26-30 count), headless, fresh.	New York	lb.	.85	.88	134.3	138.2	118.5	127.2
Oysters, shucked, standards	Norfolk	gal.	7.00	7.50	173.2	185.6	185.6	167.0
Processed, Frozen (Fish & Shellfish):					115.1	117.4	116.0	109.1
Fillets: Flounder, skinless, 1-lb. pkg.	Boston	lb.	.39	.39	100.8	102.1	102.1	98.1
Haddock, sml., skins on, 1-lb. pkg.	Boston	lb.	.34	.36	105.2	113.0	109.9	89.5
Ocean perch, skins on, 1-lb. pk.	Boston	lb.	.31	.31	122.8	122.8	118.8	114.8
Shrimp, lge. (26-30 count), 5-lb. pkg.	Chicago	lb.	.70	.70	107.2	108.0	107.2	104.5
Canned Fishery Products:					111.2	110.9	109.9	103.8
Salmon, pink, No. 1 tall (16 oz.), 48 cans/cs.	Seattle	cs.	28.00	28.00	146.1	146.1	143.5	127.8
Tuna, lt. meat, chunk, No. 1/2 tuna (6-1/2 oz.), 48 cans/cs.	Los Angeles	cs.	11.00	11.00	79.3	79.3	79.3	77.9
Sardines, Calif., tom. pack, No. 1 oval (15 oz.), 48 cans/cs.	Los Angeles	cs.	7.75	7.75	91.0	91.0	91.0	93.9
Sardines, Maine, keyless oil, 1/4 drawn (3-3/4 oz.), 100 cans/cs.	New York	cs.	8.75	8.50	93.1	90.5	90.5	93.1

1/ Represent average prices for one day (Monday or Tuesday) during the week in which the 15th of the month occurs. These prices are published as indicators of movement and not necessarily absolute level. Daily Market News Service "Fishery Products Reports" should be referred to for actual prices.

City and a 6.4-percent lower price for fresh shucked oysters at Norfolk, Va. These decreases were partially offset by a higher price for fresh small haddock fillets at Boston. In March this year, the subgroup index rose 5.6 percent from the same month of 1960. All the subgroup prices were higher in March this year as compared with March a year ago.

Wholesale prices this March for frozen processed fish and shellfish were off about 2.0 percent from the preceding month. During this period prices dropped for frozen haddock fillets by 6.9 percent, flounder fillets by 1.3 percent, and frozen brown shrimp at Chicago by 0.7 percent. Prices for frozen ocean perch fillets were unchanged from February to March this year. However, the subgroup index rose 5.5 percent from March 1960 to this March because of higher prices for frozen haddock fillets (up 17.5 percent), frozen flounder fillets (up 2.8 percent), and ocean perch fillets (up 7.0 percent). In addition, frozen shrimp prices at Chicago were up about 2.6 percent.

Wholesale prices for canned fishery products from February to March this year were up slightly (up 0.3 percent), but rose 7.1 percent from last March to this March. The only change in prices for canned fishery products from February to March 1961 was an increase of 25 cents a case for canned Maine sardines. Due to the very short supplies of canned pink salmon and California sardines, primary prices for those products were purely nominal in March this year. From March 1960 to March this year the canned fishery products subgroup index rose 7.1 percent due primarily to a 14.3-percent increase in canned pink salmon prices. During the period canned tuna prices rose slightly and Maine canned sardine prices were unchanged.

International

CENTRAL AMERICA COMMON MARKET TREATY SIGNED:

A General Treaty of Central American Economic Integration (Tratado General de Integracion Economica Centroamericana)1/ has been signed by Guatemala, El Salvador, Honduras, and Nicaragua. The treaty reaffirms the intention of the contracting parties to unify their economies and jointly promote the development of Central America.

A protocol to the Central American Convention on Equalization of Import Charges to accelerate the establishment of uniform import duties on imports from outside the region was signed at the same time, December 13, 1960. A further agreement was signed creating a Central American Bank for Economic Integration to finance regional economic integration.

A "common market" is to be established among the contracting parties within 5 years of the entry into force of the General Treaty. Except for the special treatment for certain commodities described in Annex A of the treaty, the contracting States grant one another immediate free trade for all natural and manufactured products originating in their respective territories.

These commodities are exempted from import and export duties, including consular fees, and from all other taxes, surcharges, and imposts incurred by imports and exports, or charged by reason thereof, be they national, municipal, or of any other kind. Normal handling and storage charges as well as existing exchange rate differentials continue to apply to these commodities. Goods originating in the territory of the signatory nations will enjoy national treatment in all of them, except for the usual controls for reasons of health, safety, or the enforcement of law and order.

The temporary exceptions provided in Annex A apply to specific products which, if made immediately subject to regional free trade, would cause injury to existing producers. With few exceptions the products in Annex A are to be incorporated automatically into the free trade system no later than at the end of the fifth year in which this treaty is in effect.

Meanwhile a schedule of duty reductions is specified for each commodity in the list of products receiving special treatment. These items are contained in the series of bilateral exception lists which constitute Annex A, and any change in the lists or duty schedules may be accomplished only through multilateral negotiation.

Most manufactured products do not achieve free-trade status until the beginning of the sixth year.

The signatories further agree that the immediate 20-percent reduction in import duties on the natural and manufactured products of the respective participating countries, provided for in the Protocol to the Central American Convention on Customs Charges: Central American Tariff Preference, shall not be applied to the items receiving special treatment in Annex A of the General Treaty.

The contracting parties undertake to establish a customs union among their territories. For this purpose, they agree to effect a Central American free-trade zone within 5 years and to adopt a uniform Central American customs tariff under the terms of the Cen-

1/The General Treaty, which is similar to the Treaty of Economic Association signed in February 1960, broadens the scope and sets up more specific means of financing economic integration. It incorporates the provisions of the Convention for the System of Central American Integrated Industries, to permit the four contracting parties to proceed with industrial integration. It also retains the provisions in the "Central American Convention on Equalization of Import Charges." Provisions of all other regional agreements and bilateral treaties among the Central American States are superseded by those of the General Treaty, except where the treaty does not deal with provisions of those agreements.

International (Contd.):

tral American Convention on Equalization of Import Charges signed at San Jose, Costa Rica, on September 1, 1959.

The second Protocol to the Central American Convention on Equalization of Import Charges was signed at Managua at the same time as the new Treaty of Economic Integration. In order to unify customs and transit treatment of items free traded in the Common Market area, and to simplify the application of a common external tariff, the signatory nations agree to conclude special protocols adopting a Standard Central American Customs Code and necessary transportation regulations. This is to be done within a year from the effective date of the General Treaty.

The industrial development laws and regulations, and other pertinent legislation of the contracting states, are to be made as uniform as possible re incentives offered for industrial development in the respective countries.

To that end, these nations will sign, within 6 months after the effective date of the General Treaty, a special protocol setting forth standard industry classifications, benefits, benefit periods, and administrative provisions to be applied to applicants in the signatory countries.

As for the "integrated" industries, special protocols are to be concluded within 6 months of the effective date of the General Treaty, stipulating the industrial plants that will be covered by it initially, and the benefits and obligations to which they will be subject. The provisions of the Convention on the System of Central American Integrated Industries is made part of the General Treaty in order to expedite the "integration" of industries in the region.

The Central American Bank for Economic Integration, provided for in the General Treaty and described in detail in a separate Protocol, is to serve as an instrument for financing and promoting regional economic integration. Nonetheless, members of the Bank (governments) may not obtain guarantees or loans from this institution until they have deposited instruments of ratification to the following international agreements: The General Treaty of Economic Integration, signed December 13, 1960; Multilateral Treaty of Central American Free Trade and Economic Integration, signed June 10, 1958; Convention on the System of Central American Integrated Industries, signed June 10, 1958; Central American Convention on Equalization of Import Charges, signed September 1, 1959, and the second Protocol signed December 13, 1960.

Under the new General Treaty, execution of the resolutions of the Economic Cooperation Committee is made a function of a Central American Economic Council. The Economic Cooperation Committee, a policy-determining body composed of the Ministers of Finance of the Central American countries, was formed in 1952.

In addition, an Executive Council will be created to apply and administer the General Treaty and to carry out the actual tasks required to achieve Central American economic union. The membership of the Executive Council will consist of one principal delegate and an alternate for each of the contracting parties.

The signatories agree not to conclude unilaterally with countries outside Central America any new treaties that affect the principles of Central American economic integration. As in previous agreements, they also agree to maintain the "Central American Exception Clause" in commercial treaties entered into on the basis of most-favored-nation treatment with countries other than the Central American states. This clause limits the application of most-favored-nation treatment by permitting the existence of special benefits to the countries of Central America which are not extended outside the area.

In other matters affecting third country interests, reference must be made to earlier agreements since the General Treaty does not cover them. Thus, under the Multilateral Treaty of Central American Free Trade and Economic Integration, the contracting parties agree to renegotiate or if this is not possible, to denounce, any commercial agreements in effect with third countries which violate the principles of the Central American Convention on Equalization of Import Charges. This is to be done by each party within one year of its deposit of its instrument of ratification of that Convention.

The General Treaty will become effective among the ratifying states eight days after the third instrument of ratification has been deposited and for the fourth state on the date

International (Contd.):

of deposit of its instrument of ratification. The ratifying instruments are to be deposited with the General Secretariat of the Organization of Central American States (ODECA) in San Salvador.

Costa Rica has been invited to join and may adhere to the treaty at any time. Panama is also free to adhere to this treaty.

The General Treaty is to remain in force for 20 years from the initial date of its entry into force and may be extended indefinitely. Denunciation by any contracting party may be made after the 20-year period, to have effect 5 years after such notice is given. The treaty remains in force among its adherents, however, so long as two States continue to apply it. (Foreign Commerce Weekly, March 16, 1961.)

EAST AFRICA

MEETING ON MARINE BIOLOGY AND FISHERIES OF AFRICA'S EAST COAST:

A Symposium on Marine Biology and Sea Fisheries of Africa's East Coast was convened in Cape Town, Union of South Africa, from September 12 to 17, 1960, under the auspices of the Commission for Technical Cooperation in Africa, South of the Sahara (C.C.T.A.). The chairman was Professor J. Millot of the Malagasy Republic and the General Secretary was Dr. E. Postel who serves C.C.T.A. as its Inter-African Coordinator for Oceanographic, Marine Biological, and Sea Fisheries Research.

The Symposium was attended by delegates from the Malagasy Republic, Portugal, and the Union of South Africa. A paper from the East African Marine Fisheries Research Organization, Zanzibar, East Africa, was also presented, although the East African Territories (Kenya and Tanganyika) sent no delegates. Two observers represented the Food and Agriculture Organization. Some 15 papers were read to the Symposium.

The Symposium was opened by the South African Secretary for Commerce and Industries, who stressed the need for fishing research along Africa's east coast. He pointed out that, according to FAO statistics, Africa south of the Sahara accounted for only six percent of the world's fish catch and of this share, "the waters off the west coast of Central and Southern Africa are yielding more than ten times as much fish as the seas along the eastern seaboard." Calling for international coordination of research efforts, the South African Secretary for Commerce and Industries referred hopefully to the forthcoming International Indian Ocean Expedition.

List of Working Papers Presented at the Symposium of Marine Biology and Sea Fisheries on the East Coast of Africa, Cape Town, September 12-17, 1960

Title	Author	Language[1/]
1. Agenda	-	E & F
2. Report by the Portuguese Delegation	-	F
3. Contribution by Division of Fisheries, Dept. of Commerce and Industries, Union of South Africa	-	E
4. Notes on the Prawn Fishery Potential in Madagascar	A. Crosnier and D. Charbonnier	F
5. Crawfish Fishing in the Fort Dauphin Region (South-East Madagascar)	P. Fourmanoir, A. Crosnier & D. Charbonnier	E & F
6. Nosy-Be Station Publications by the Oceanography Branch of the Madagascar Institute for Scientific Research Issued or in Printing at 1 September 1960	-	E & F
7. Campagne d'Oceanographie physique en Canal de Mozambique	-	F
8. Marine Fisheries Research in East Africa: A review of the important activities of the East African Marine Fisheries Research Organization	D. Hall	E
9. Progress Report on Arrangements for a World Meeting on Tunas and Related Species	Fisheries Div., FAO	E
10. Essai de palangres "Long Lines" a'Madagascar	-	E
11. Resume du travail en cours de publication de P. Fourmanoir concernant les requins de la Cote Ouest de Madagascar	-	F
12. Hydrography of the East and South Coasts of the Union of South Africa and Possible Effects on Fishery Problems	M.E.L. Buys	E
13. East Coast Thunnidae	F. H. Talbot M. J. Penrith	E
14. Notes on Marine Invertebrates of Commercial and Possible Commercial Importance	-	E
15. Not listed.	-	-
16. Communication provisiore sur la repartition des copepodes planctoniques marins de l'Afrique du sud.	A. de Decker	F
17. Planktonic Polychaeta as Indicators of Ocean Currents Around South Africa	J. H. Day R. Weber	E

1/E - English only; F - French only; E & F - English and French.

International (Contd.):

The Symposium was divided into several sessions, each on a different aspect of the East African region of the Indian Ocean. First, the physical and biological environment of the area, which for the Symposium's purposes covered the waters from Cape Point to Somalia, was discussed. The second session dealt with the research work done by the countries represented. Some of the research stations had done interesting experimental fishing, particularly for shrimp. Efforts to develop tuna fishing were discussed. South Africa's representatives mentioned their work with midwater trawls in the Union's east coast waters.

The third and fourth sessions dealt with fish, lobster, shrimp, and plankton. The fifth session discussed what is known of the productivity of the Indian Ocean, what further methods of measuring this productivity might be employed, and the present extent of commercial fisheries in the East African waters of the ocean.

The sixth session was devoted to an inventory of regional resources for marine biological and sea-fishery research, the need for international cooperation, and the part C.C.T.A. could play in coordinating efforts.

At the final session numerous recommendations were approved. Among them were recommendations to increase the size and number of research establishments in the East African area of the Indian Ocean; to train more scientists for work in the area; to increase scientific exchanges among the interested countries; to pay special attention to the study of shrimp in the area for the better exploitation of the shrimp resource; to make a coordinated systematic study of tuna in the area; and to draw up a bibliography of all research reports and other scientific information on the area in collaboration with C.C.T.A. It was also recommended that closer coordination be effected within the group and with the International Indian Ocean Expedition.

The Director of the Union's Fisheries, when interviewed, made the following comment. He felt, after the Symposium, that the Malagasy Republic offered interesting possibilities to overseas fishing interests. The waters of the Mozambique Channel appear to him to have rich enough resources, but the Malagasy fishery at present lacks capital, modern equipment, and skills to take advantage of the resources.

An official from the South African Museum stated that the subject of a concentrated, systematic study of tuna was taken up in detail at another C.C.T.A. symposium he attended, which was held in Dakar from December 12 to 17, 1960. There it was decided to coordinate both the west coast (Atlantic) and east coast (Indian Ocean) tuna studies for southern Africa, but not to centralize control of the study. (United States Consulate, Cape Town, January 31, 1961.)

FISHING LIMITS

SWEDISH-NORWEGIAN TALKS ON FISHING LIMITS:

Swedish-Norwegian negotiations regarding extension of the Norwegian fishing limits were held in Oslo, Norway, February 3 and 4, 1961. (As of April 1, 1961, Norwegian fishing limits will be extended to 6 miles and from September 1, 1961, to 12 miles). The negotiations are considered preliminary only and the meeting was arranged for the purpose of establishing the items of discussion at a later meeting in Stockholm, Sweden.

Swedish fishermen hope that the right to fish inside the four-mile limit in the Oslo fiord (mainly for shrimp) will continue. According to a 1955 agreement between Sweden and Norway, which expires on June 30, 1961, Swedish fishermen are permitted to fish for shrimp inside the four-mile limit in the Oslo fiord and Norwegian fishermen have been permitted to fish inside the Swedish four-mile limit along the Swedish coast. It is now claimed by Norwegian fishermen that the Norwegian fishing along the Swedish coast is of insignificant value, whereas the Swedish catches along the Norwegian coast reach a value of several million crowns. Whether Swedish fishermen will be permitted to fish up to the four-mile limit in other areas is, however, uncertain, but it is hoped in Goteborg that Swedish fishermen will be permitted to do so in the Skagerack area. (United States Consulate, Goteborg, February 10, 1961.)

FISH MEAL

PERU AND WEST GERMANY SIGN AGREEMENT ON MARKETING OF FISH MEAL:

The Governments of Peru and the Federal Republic of Germany in Lima on January 27,

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1961, signed a joint declaration pertaining to the market for fish meal. The Joint Declaration follows:

"Animated by the common desire to stimulate to a greater extent the economic relations between their two countries, the Governments of the Peruvian Republic and of the Federal Republic of Germany agreed, in accordance with the spirit of the Commercial Agreement of July 20, 1951, to hold conversations regarding the normalizing of the market for fish meal. Said conversations were carried on in the city of Lima between the accredited Delegations of the Governments between January 17 and 27, 1961.

"I. Both Delegations proceeded to a full exchange of ideas about production, the market, and the sale of fish meal in the world market, examining in detail the exports of fish meal from Peru to the Federal Republic of Germany. The Parties agreed that a normalizing of the trade in said product would be in the interest of both countries.

"II. The Delegation of the Peruvian Republic, in the course of the conversations, made it known that the National Fisheries Society, with a view to contributing to the normalizing of the world market for fish meal, had taken the following measures:

"(a) Agreement of the producers of fish meal of Peru, reached in September 1960, establishing export regulations which will permit the equilibrium of the buying markets and the improvement of prices. This agreement entered into force January 1, 1961.

"(b) Agreement of Paris, among representatives of the principal fish-meal producing and exporting countries--signed October 1, 1960. This agreement fixed the bases for normalizing the conditions of import markets, indicating world-wide export figures which are related to the demand of consuming markets. That agreement established the Peruvian export figure of approximately two-thirds of world-wide exports.

"(c) Supreme Decree No. 18 of December 16, 1960, issued by the Government of Peru, approving the Agreement of Export Regulations as well as the Agreement of Producers signed in Paris, giving the National Fisheries Society the authority necessary for the proper functioning of both measures.

"III. The Delegation of the Peruvian Republic agrees that, on the basis of Paragraph II, the National Fisheries Society is in a position to declare:

"That exports to the Federal Republic of Germany will be so channeled as, adjusting to subsections (a) and (b) of Paragraph II and possible future agreements, to lead to the normalizing of the market and prices for fish meal.

"Likewise, and within this regulation, the National Fisheries Society, upon authorizing export licenses for fish meal to countries other than the Federal Republic of Germany, will take appropriate precautions to the end that such shipments may not be re-exported to the said Republic, which will take appropriate measures to prohibit the importation of fish meal not originally declared for that destination.

"IV. Both Governments will continue to observe carefully the development of the world market for fish meal and, if it should become necessary, undertake new negotiations in Bonn.

"In witness whereof, the present Joint Declaration is signed in the city of Lima, January 27, 1961, in four originals, two in Spanish and two in German, establishing the valid text in both languages." (United States Embassy, Lima, February 15, 1961.)

FOOD AND AGRICULTURE ORGANIZATION

INTERNATIONAL FISH MEAL MEETING: Market Problems Studied: The tumbling price of fish meal and the effect it has had on the incomes of fishermen and producers made a meeting on the subject advisable, and 23 countries accepted invitations to the International Meeting on Fish Meal, March 20-29, at the Food and Agriculture Organization headquarters in Rome. Governments indicating their intention to send representatives were: Belgium, Cambodia, Canada, Colombia, Denmark, Germany, Iceland, Iran, Japan, Morocco, the Netherlands, Norway, Peru, the Philippines, Portugal, Somalia, Spain, Sweden, Tunisia, the Union of South Africa, the United

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Kingdom, the United States, and Yugoslavia.

The meeting was convened by FAO at the request of governments and with the financial backing of the world's fish-meal industry, and considered practical steps towards increasing effective demand for fish meal and ensuring stable conditions in the market.

United States Represented: The U. S. Departments of State and Interior and United States fish meal producers were represented at the FAO intergovernmental meeting in Rome, Italy, March 20-29, 1961. The emergency meeting was requested by member fish-meal producing countries as a result of a rapid increase in the world's productive capacity causing accumulation of stocks and substantial reduction in prices. Less than full use is being made of this valuable protein material which goes directly or indirectly into feed, and the incomes of fishermen and others involved in the production of fish meal are being seriously curtailed.

The meeting was expected to assess the world's demand for fish meal, both short- and long-term, in relation to productive capacity; consider ways and means of increasing the effective demand by action on the part of government and industry individually or in concert, such as in the feeding of protein-undernourished peoples; and explore possibilities of ensuring stable conditions in the international market for fish meal without resort to restrictive measures.

The following were the members of the United States Delegation to the meeting at Rome, March 20-29.

Chairman: Clarence W. Nichols, Special Assistant to the Assistant Secretary for Economic Affairs, Department of State. Vice Chairman: Donald L. McKernan, Director, Bureau of Commercial Fisheries, Department of the Interior.

Advisers: Donald Y. Aska, Chief, Branch of Marketing, Bureau of Commercial Fisheries, Department of the Interior; Thomas A. Barber, J. Howard Smith, Incorporated, Port Monmouth, N. J.; Michael P. Boerner, Office of International Trade, Department of State; Charles Butler, Acting Chief, Division of Industrial Research, Bureau of Commercial Fisheries, Department of the Interior; Charles Carry, Executive Secretary, California Fish Canners Association, Terminal Island, Calif.; W. M. Chapman, Director, The Resources Committee, San Diego, Calif.; Lawrence I. Clarke, President, Atlantic Processing Company, Amagansett, Long Island, N. Y.; J. Steele Culbertson, Director, Industrial Products Division, National Fisheries Institute, Incorporated, Washington, D. C.; Ursula H. Duffus, Economic Officer, American Embassy, Rome; Ammon G. Dunton, Chairman of the Board, Reedville Oil and Guano Company, Incorporated, White Stone, Va.; Allen W. Haynie, President, Reedville Oil and Guano Company, Incorporated, Baltimore, Md.; William C. Herrington, Special Assistant for Fisheries and Wildlife, Office of the Under Secretary of State; Frederick C. June, Jr., Chief, Menhaden Investigations, Bureau of Commercial Fisheries, Department of the Interior, Beaufort, N. C.; Stanley W. Letson, President, Maine Marine Products, Incorporated, Portland, Maine; John B. Lowry, Menhaden Vessel Captain, Reedville, Va.; John Franklin McCammon, Ralston Purina Company, St. Louis, Mo.; Harry I. McGinnis, Wallace Menhaden Products, Incorporated, New Orleans, La.; George R. Wallace, President, Wallace Fisheries Company, Morehead City, N. C.; Clayton E. Whipple, Agricultural Attache, American Embassy, Rome.

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INTERNATIONAL FISH MEAL MEETING IN ROME:

The fullest support of the Food and Agriculture Organization (FAO) for any measure contributing to the more extensive and profitable use of the world's fishery resources was pledged on March 20, 1961, by the FAO Deputy Director-General, at the opening session of the International Meeting on Fish Meal, Rome, Italy.

The meeting with 123 participants from 27 nations plus observers from four international nongovernmental organizations considered measures to assure stability in the fish-meal market. A sharp increase in the production of fish meal (up by some 700,000 tons in five years) caused the price of fish meal to drop from about $130 a ton to $75 a ton.

The participants named Dr. Augusto Assettati, Minister Plenipotentiary in the Italian Ministry of Foreign Affairs, as Chairman. Also elected were a chief rapporteur, three vice-chairmen, and six other chairmen of working committees. This group of ten constituted the meeting's Steering Committee.

The broad aim of the meeting was to assess the world demand for fish meal, now and in the future, and to explore all possibilities of achieving stability in the industry on the basis of consolidation and expansion of production and trade, without recourse to any restrictive measures which could be avoided by an exchange of information, experience, and views.

The Deputy Director-General pointed out: "You know that the expansion and development of the fish-meal industry has occurred with astonishing rapidity and offers an impressive demonstration of the results of applying modern technology and science to the exploitation of natural resources scarcely

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touched by the limited, often primitive, operations of earlier generations of fishermen.

"At the same time, the suddenness with which the market for fish meal deteriorated at a certain moment demonstrates just as impressively how delicate the balance may be between supply and demand and how powerful has been the incentive to increase production provided by the strength of the market up to 1959."

The widespread anxiety in the fish-meal industry has underlined the importance of timely international consultation. This applies with special force to fisheries, for unlike agriculture, fisheries are concerned with markets and natural resources that exist outside national boundaries.

"I must express my gratification that, in the present emergency, the Governments and the industry alike considered it appropriate to turn to FAO as the agency which could and should provide an international forum for an objective discussion of their problem," said the Deputy Director-General. Costs of the meeting were subscribed by the participating countries and their fish-meal industries. The industry also arranged for translations at the meeting into Japanese in addition to FAO's three official languages.

Two opportunities involving the use of fish meal and moving towards relieving hunger and malnutrition and falling within the scope of FAO's Freedom-from-Hunger Campaign were indicated to the meeting by the FAO spokesman.

"One concerns the possibility that the expansion and improvement of livestock production in many countries, where fish meal is scarcely known or unavailable at present, may eventually promote a much heavier demand for fish meal if certain problems of cost, foreign exchange, and farmers' education can be solved.

"The other concerns the possibility of promoting the use of fish meal and similar products for human consumption, a possibility which has been explored only very tentatively so far. A very great deal remains to be done in the way of nutritional and processing research, consumer education, and home economics before the significance of this possibility can be properly assessed."

The six working committees were: Group A, production of fish meal for animal food; group B, production of fish meal for human food; group C, research and productive capacity in the industry; group D, increasing the demand for fish meal for animal food; group E, increasing demand for use as human food; group F, studies towards the stabilization of conditions in the international fish-meal market.

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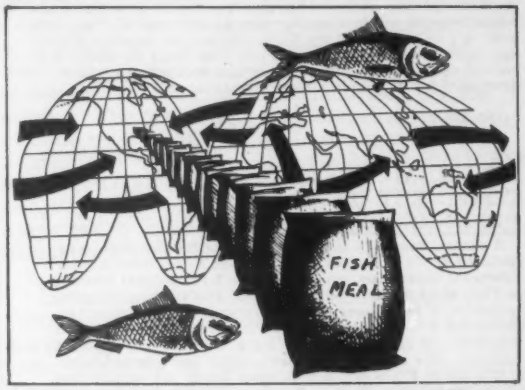
SUCCESSFUL TESTS OF FISH MEAL IN FOOD FOR HUMANS:

A note of optimism over the possibilities of refined fish meal or fish flour for human feeding was voiced on March 22, 1961, at the International Meeting on Fish Meal by delegations from countries where mass human feeding of fish flour has been successful.

The Moroccan delegate told the 27-nation meeting at the Food and Agriculture Organization (FAO) in Rome, that campaigns promoting the use of fish flour still needed to be developed.

"Our experiments with fish flour started two years ago," said the Moroccan delegate. "The results have been extremely satisfying, the acceptability complete. We made the population realize that it is deficient in protein. During 1959-1960, we doubled the human consumption of fish flour in Morocco. We hope to increase it in 1961. Two plants now manufacture biscuits that contain 15-percent protein derived from fish flour. The Government, with the assistance of international organizations such as FAO, has undertaken a mass campaign to increase the demand for fish flour. Our Government recognizes that 40 percent of the population still suffers from malnutrition."

The Moroccan opinion was seconded by the representative from the United Nations Children's Fund (UNICEF), whose organization also had been active in the Moroccan fish flour campaign. "I do not believe that adequate promotional campaigns have been made in countries where protein malnutrition exists," said the UNICEF representative. "Experiments in the Union of South Africa and Sweden were done among a population that had a wide range of choice among other protein foods."



In discussing the acceptability of fish flour, the Peruvian delegation, who described his country as the world's largest producer of fish meal, said tests began two years ago in Peru. "The fish flour was put into bread and was accepted very well by the children," said the Peruvian delegate. "The main difficulty is to convince the population that this type of food is food for them to combat protein malnutrition. The introduction of fish flour into their diets would be of great help."

The Swedish delegation reported that in Sweden the use of fish flour was still in the experimental stage. However, it had been used with success in rye bread and porridge.

A United States delegate said that fish flour products had been offered in the United States and that the Government was testing the products and running feeding tests. Plans called for studies in the engineering processes needed to manufacture fish flour products more cheaply.

Discussing the production of fish meal, almost every country said its production could be greatly increased. The Norwegian delegation said its winter herring catch should rise again in 1964 and so would its fish-meal production. The same was the case with Iceland.

The Danish delegation reported that with a 10- to 20-percent rise in the world price for fish meal, Danish production would increase again to 50,000-60,000 metric tons. The delegation said that it did expect such a price rise.

"Small producers can only continue if prices are good," said the French delegate. "French producers of fish meal have had to reduce the price. If fish is already cheap, as it is in France, we must find means of keeping the price up if we are to keep the industry growing. In France, the manufacture of fish meal is not a primary industry."

The Moroccan delegate said that 70 percent of fish processed within his country went into fish meal. "Morocco

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could double its fish-meal production if financial resources were available," he said. "The price now is set by the Government and is very low."

"Our resources are probably among the greatest of the world," said the Peruvian delegate. "However, measures have been taken to produce only 3 million metric tons of fish for fish meal during this year in order to preserve these resources. But studies are still under way on the resources to see what would be the best level of production. We are building fishing boats up to the 200-ton capacity. Plants and various operations have been modernized and we are improving the quality of the product."

A United States delegate, representing the second-largest producer of fish meal, said prices would still be a factor and would keep its production this year at last year's level. However, the delegate said the United States was capable of producing 15,000 tons of fish meal per hour if all its plants and boats were fully utilized. This meant production could be doubled if the economic situation warranted it.

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FISH MEAL MEETING CONFIDENT OF PRICE RECOVERY:

A partial recovery in the world price for fish meal was declared an "absolute certainty" by an FAO consultant on fish-meal utilization, speaking at the International Meeting on Fish Meal in Rome on March 23. The visiting associate professor of the University of California told a committee concerned with increasing the demand for fish meal for human food that the price rise in the past several months will continue. The price of fish meal, which had dropped from $130 a ton to $75 a ton, last October began to rise and currently ranged from $100 to $105 a ton. "The fish-meal market has radically changed in competition with other high protein feeds," said the associate professor. "The premium which fish meal can expect to command over other high-protein feeds will be a bit lower. But this does not mean that the price will be at all unfavorable to the industry. I think that some recovery of price is absolutely certain."

The professor went on to sketch some of the "completely unfortunate" conditions that had combined to depress the price of fish meal during the past several years. He named oceanographic factors affecting the supply of raw fish, a drop in hog and poultry production, a sudden increase in competition from soyabean feeds, and additional production of fish meal by Peru. Some of these factors have been overcome, others are changing. The hog and poultry production is picking up. The price of fish meal is going to rise within the next six to nine months.

"With the great increase in supply last year, fish meal was being pushed into markets where it was already being used," said the professor. "It then became valuable only for its crude protein. Now, supplies are being reallocated, new markets developed. Fish meal will come to be evaluated in the terms of its plus factors, such as sulphur-containing amino acids. The general market situation has altered from what it was several years ago."

The professor's optimism was reflected by the adviser to the delegation from the Union of South Africa, whose country is the world's second-largest exporter of fish meal. Although income from fish meal was £1.5 million less in 1959 in South Africa than in 1960, the adviser said that optimism prevails in the South African fish-meal industry. However, he pinpointed continuity of supply as one of the main factors that lead to market stability. "We have had a policy of carrying stocks over a 12-months period," he said, "where the average producer only has supplies during the 6 to 7 months when he is actually producing. Unless exporting countries are prepared to carry stocks over 12 months, so they can give a reasonable spread of supply, they cannot give consumers confidence that stocks will be available during all the year."

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MEETING DISCUSSES ROLE OF FISH MEAL IN ANIMAL FEED:

The continued and expanded use of fish meal in feed for animals will depend on steps being taken by the fish-meal industry to standardize the quality, supply, and price of its product, the International Meeting on Fish Meal in Rome was told on March 22, 1961. A professor of the University of Maryland told a working group of the meeting that if these factors are "relatively constant," and if better use is made by the industry of scientific and economic information about its product, "in most areas the use of fish products for animal feeding can be increased."

The working committee, which was to report to a plenary session on March 23, was concerned with factors affecting the demand for fish meal in compounds of animal feed. Despite a vastly increased supply in the past year, and a sharp drop in prices, fish meal had not regained its traditional place as the high-protein component of compound feeds. One reason advanced was that feed manufacturers had, in an earlier period of high fish-meal prices and short supply, converted to the use of synthetic amino acids. Improved technology and lower prices in the production of synthetics had made manufacturers reluctant to change back to fish meal.

Other speakers pointed out that, with the assurance of constant supply of high-quality fish meal at a moderate price, feed manufacturers would adjust their mixtures to include more fish meal. While competition from other sources of protein was held to be growing stronger, it was felt that fish meal was still a "good buy" in terms of its nutritive value.

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MEETING ON ECONOMIC EFFECTS OF FISHERY REGULATIONS:

The economic effects of fishery regulations, a field of study that is rapidly gaining international importance with the increasing size and range of fishing fleets and with the extensive exploitation of the high seas, will be further evaluated at a meeting of experts from June 12-17, 1961, at Ottawa, Canada.

Sponsored by the Food and Agriculture Organization (FAO), the meeting is the result of four conferences, beginning in 1956, on the economic effects of regulations in selected fisheries. FAO member governments and interested intergovernmental organizations have been invited to send participants with expert knowledge in this field.

The purpose of the meeting is to add to the theoretical knowledge of the economic management of fisheries and to improve the value of regulation as a means towards attaining basic objectives of fishery policy. Until recently, attention was focussed primarily on regulating fishery resources as a means of protecting these resources and to maintain a steady yield. Just before the Second World War, it was pointed out that a rate

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of fishing that produces maximum steady yield may not necessarily be the most economical one.

The effects of regulation on the incomes of those whose livelihood depends on the exploitation of fishery resources, is of utmost importance. For example, on certain fishing grounds, cost factors may be too high for the economic exploitation of the fishery by a great number of fishermen. In such cases, it might be necessary to give consideration to alternate measures, such as the exploitation of these grounds by only a limited number of fishermen so that each could derive a greater income from the fishery.

The problem of determining and ensuring an economic level of fishing intensity is rather complex, since it requires not only an evaluation of biological and economic factors but also agreement among nations as to the best exploitation of fish stocks that are often property common to all.

Regulations have been closely examined from a theoretical and economic standpoint in a working paper, "The Economics of Regulating Fisheries," prepared by Anthony Scott of the University of British Columbia (Canada) for the meeting. "The criterion against which methods of regulations and their results are assessed is that of the efficiency of the whole economy, in which the fishery is just one industry," the paper points out. "It should be asked of each fishery regulation whether it assists or retards efforts to make the best joint use of manpower, capital, and natural resources."

Using this criterion, the meeting would examine and evaluate the economic effects of the different types of fishery regulations (e.g. closed areas, closed seasons and quotas, limitations on technology, gear and entry) as applied in selected fisheries.

Numerous agreements among countries interested in the protection and exploitation of certain fishery resources are now in force. The meeting is to provide an opportunity for discussion on experience gained in the Northwest Atlantic lobster and the Northeast Pacific halibut industries, the South African pilchard industry, the whaling industry, and the Japanese trawl fishery.

OCEANOGRAPHY

INTERGOVERNMENTAL CONFERENCE:

The Intergovernmental Conference on Oceanographic Research, convened by UNESCO, met in Copenhagen, Denmark, July 11-16, 1960. The Conference adopted resolutions for the General Conference of UNESCO in November 1960, concerned with: (a) the establishment within the framework of that agency of an International Oceanographic Commission made up of representatives of nations willing to participate in oceanographic programs which require concerted action by the nations; (b) the assistance and strengthening of national and regional research training institutions, especially in relation to the International Indian Ocean Expedition; (c) the study of the feasibility and advisability of operation by UNESCO of an international research and training vessel (which study should be undertaken by the Intergovernmental Oceanographic Commission) and the necessary steps taken to start such an operation if recommended by the Commission.

In November 1960 the UNESCO Council authorized establishment of an Office of Oceanography as a part of UNESCO. At the same time, it set up an Intergovernmental Oceanographic Commission. (Pacific Science Association Information Bulletin, January 1961.)

WHALING

PRICE HIGHER FOR 1960/61 SEASON ANTARCTIC WHALE OIL:

The International Association of Whaling Companies reports that about 220,000 tons of whale oil of the 1960/61 season have been sold by the British, Dutch, Japanese, and Norwegian whaling companies. About 190,000 tons have been bought by a large British firm and about 30,000 tons by the three Norwegian hardening plants. In addition, the British firm has purchased 10,000 tons of whale oil from the stocks held by the British Ministry of Food. The price for the entire quantity is reported to be £73 10s. (US$205.80) a long ton or £1 ($2.80) more than the price for oil produced in the 1959/60 season. It is also reported the entire Norwegian production of 10,500 tons of sperm oil has been sold.

Although the Norwegian expeditions planned to continue operations until April 7, the weather in the Antarctic was reported to be very unfavorable and it was uncertain wheth-

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er the Norwegian expeditions would reach the quota of 5,800 blue-whale units. United States Embassy, Oslo, March 24, 1961.)

Angola

SUBSIDY ON FISH MEAL EXPORTS ENDED:

With the close of 1960, the Angolan Institute of Fishing Industries ceased granting subsidies to exporters of fish meal. The funds provided for this purpose were sufficient only for the period July 1 to December 31, 1960; the authority governing this expired and was not renewed. The subsidy has been withdrawn because of the need for the Government to economize and divert money to more important projects and because the world market price for machine-dried fish meal has risen to about $85 per metric ton. That figure roughly approximates the costs of production of many Angolan producers, according to the Fishing Institute. (United States Consulate, Luanda, February 24, 1961.)

Argentina

SHRIMP LANDINGS FROM THE RAWSON AREA POOR:

According to the January 4, 1961, issue of the Argentine newspaper La Prensa, over half of the 40 fishing vessels that sailed to the shrimp grounds near Rawson, Province of Chubut, returned to northern waters because of a scarcity of shrimp this season. Returning fishermen attribute the scarcity to the large catches of the past five years which supposedly included young and breeding shrimp.

Last year also was an extremely poor year for the Argentine shrimp industry. However, the fishermen's explanation that overfishing is creating the scarcities is not substantiated by scientific investigators. There is no satisfactory answer for the fluctuations in the shrimp fishery in the Rawson area. A poor catch in 1961 will seriously affect those firms which were organized in the past four years to export shrimp to the United States. (United States Embassy, Buenos Aires, January 4, 1961.)

Australia

SHRIMP INDUSTRY:

There was a sharp decrease in the amount of Australian shrimp exports, particularly to the United States in the fiscal year ending June 30, 1960. Total exports, which had risen to more than 427,000 pounds in 1958/59, dropped to only 209,795 pounds in 1959/60 and are estimated to be running at an annual rate of under 200,000 pounds this fiscal year, July 1, 1960-June 30, 1961. Even more marked has been the decrease in exports to the United States (including Hawaii) which fell from 385,932 pounds (90 percent of total shrimp exports) in 1958/59 to 35,330 pounds in 1959/60 (only 27 percent of total shrimp exports). Exports to the United States for 1960/61 are estimated to be about 26,000 pounds.

Table 1- Australian Shrimp Export by Country of Destination, 1959/60 and 1960/61

Destination	1960/61 1/ July 1- June 30		1959/60 July 1-June 30	
	Green Shrimp	Cooked Shrimp	Green Shrimp	Cooked Shrimp
	(Lbs.)			
United States	6,000	-	6,640	-
Honolulu	20,000	10,000	28,690	15,199
New Guinea Area.	100,000	25,000	96,676	25,622
New Caledonia	2,000	23,000	1,627	23,005
Fiji, New Hebrides	1,000	11,000	788	11,292
Others	100	200	60	196
Total	129,100	69,200	134,481	75,314

1/Estimated.

The Australian Fisheries Division can offer no explanation for the sharp reduction in shrimp exports to the United States, which has taken place in spite of the considerable rise in total heads-on landings from over 6.7 million pounds in 1958/59 to 7.8 million pounds in 1959/60. Officials are only able to speculate that a rapid increase in the catch and availability of large banana shrimp has attracted Australian consumer attention, and domestic demand and prices for all kinds of shrimp have risen as a consequence. Coupled with this is the fact that consumer demand for shrimp in nearby New Guinea has also risen sharply. With local demand apparently sufficiently high to support profitable prices, fishermen have turned away from the distant United States markets to local and nearby markets.

The main shrimp fishing grounds are located on the east coast of Australia between Nowra in New South Wales and Yeppoon in Queensland. Shrimp fishing is not carried out along the entire length of this coastline, but is concentrated around ports such as Nowra, Newcastle, Maclean, and Evans Head in New South Wales, and Southport, Moreton Bay, Tin Can Bay, Bundaberg, Gladstone, and Yeppoon in Queensland. Over 90 percent of the Australian shrimp landings come from that area. The remainder comes from Southern New South Wales, Victoria, and Western Australia.

Shrimp are available from the above areas, which run from tropical to temperate zones, over most months of the year. In Queensland, banana shrimp (Penaeus merguiensis) are obtained in Hervey Bay and off Yeppoon from May to August. King shrimp (Penaeus plebejus) are taken off Fraser Island from July to September and off Moreton Island from November to February. In New South Wales school shrimp (Metapenaeus macleayi) and king shrimp are taken during the December-April period.

Although there are 5 plants in New South Wales and 8 in Queensland registered to process shrimp by freezing for export, they do not all export their production. One firm in New South Wales, which is registered to can shrimp for ex-

Australia (Contd.):

port, has packed less than 20,000 pounds to date, all of which have been sold on the Australian market. There is very little trend towards mechanization in the existing plants. In most plants, sorting, peeling, and heading, etc. are carried out by female labor. Only one plant uses automatic grading machines; there are no peeling machines in Australia.

Most vessels built for Australian fisheries are designed so that with slight modifications they can be used in other fisheries. Therefore, there is no specific shrimp fleet as such and there is no specific construction program for shrimp vessels. All existing shrimp fishing vessels are owned by Australians or Australian companies.

There are at present no export controls, subsidies, or taxes levied on shrimp exports by the Australian Government. The wages paid to employees in Australian processing plants are: (1) Full-time employees receive the basic wage plus a margin for skill. The basic wage in New South Wales and Queensland is £14 14s. (US$ 33.36) and £13 16s. ($31.32) per week, respectively. The margins range up to approximately £1 10s. ($3.40) per week. (2) Employees on piece work who are generally females, are paid on the quantity handled. The most recent data available (1957) for Queensland is: grading 1d. (0.9 U.S. cent) a pound; heading and grading 1.5d. (1.4 cents) a pound to 2d. (1.8 cents) a pound, layer packing 1d. (0.9 cent) to 2d. (1.8 cent) a pound according to grade. The greater the number of shrimp per pound the higher the rate.

Payment to the fishermen varies slightly but in all cases full payment for shrimp delivered is made within one month of delivery.

No accurate data are available on fishermen's income. However, as the majority of shrimp fishermen engage in other types of fishing it can be assumed that the income from shrimp fishing alone is insufficient for economic operation of the fishing vessel.

With further exploratory shrimp trawling in waters adjacent to the northern coastline of Australia there is a good possibility that the Australian shrimp catch will be increased.

Shrimp in Australia probably include the banana, tiger, and western king shrimp (Penaeus latisulcatus), which are suitable for export to most countries.

The banana shrimp which is expected to be found in commercial quantities in the tropics has already been exported to the United States where it is classified as a "white" shrimp. The western king shrimp may be suitable for export to the United States as a "pink" shrimp. (United States Embassy in Canberra, November 30, 1960.)

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CANNED FISH IMPORT STATUS CHANGED FROM QUOTA TO REPLACEMENT BASIS:

All Australian canned fish imports were transferred on January 1 from a quota to a replacement basis.

Norms will be established on the basis of twice the value of Category A quotas held by importers at December 31, 1960. The value of outstanding licenses will be taken into account in calculating the amounts initially available under norms. The replacement system enables licenses to be granted to new importers.

The application, last April, by the Fish Canners' Association of Australia for a Tariff Board hearing on canned fish has been granted. The Association will ask for increased import duties.

The Board will report whether assistance should be given to the Australian fish-canning industry; if so, what assistance; and, if assistance should be given by Customs tariff, what the rates of duty should be. (Australian Fisheries Newsletter, February 1961.)

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TUNA LANDINGS IN NEW SOUTH WALES SET NEW RECORD:

The 1960/61 tuna season in New South Wales, which began badly with some weeks of unfavorable weather, by January 10 had produced record landings of 2,250 short tons. The fish were delivered to the cannery at Eden. It was also the first time the Eden deliveries had topped the 2,000-ton mark.

Between December 15 (when it seemed that the season was tapering off) and January 10, the cannery received 300 tons of tuna. On January 12 some boats were still out looking for more fish.

To the Eden deliveries of 2,250 tons must be added tuna taken to South Australia by refrigerated trucks and fishing boats, the minor normal buying by a Sydney cannery, and some tuna used for other purposes. But even at 2,250 tons, the 1960/61 New South Wales tuna catch is well above the previous record of 1,964 tons in 1959/60.

The tuna were taken this year in bursts, which sometimes overtaxed the Eden freezer. The cannery notified the Tuna Boat Owners' Association of Australia daily of the quantity of fish it could handle.

In 1953/54, the New South Wales tuna catch first reached the substantial total of 526 short tons.

New South Wales tuna landings, in short tons, 1953/54-1960/61 were as follows: 1960/61[1/], 2,250; 1959/60, 1,964; 1958/59, 1,945; 1957/58, 965; 1956/57, 841; 1955/56, 327; 1954/55, 460; and 1953/54, 526. (Australian Fisheries Newsletter, February 1961.)

1/To January 10, 1961.

Austria

FISH MEAL MARKET:

Austria, an inland country, has no marine fishing industry and no domestic production of fish meal. The quantity of fish meal consumed is equal to the quantity imported.

Consumption of fish meal is insignificant when considering that approximately 1.3 million metric tons of grains plus large quantities of hay and other feeds are fed to livestock annually, and that only about 12,800 metric tons of fish meal were imported in 1959.

Imports of fish meal and fish waste unfit for human consumption (tariff #23.01-B) are duty-free and liberalized from both the dollar and European areas. Imports are effected by importers and wholesalers of feedstuffs and a few large producers of mixed feeds.

The most important countries of origin of Austrian fish meal imports are Angola, Norway, and Peru, which supply about 90 percent of the imports.

Austria's Imports of Fish Meal, 1959

Country of Origin	Quantity	Value	
	Metric Tons	AS 1,000	US$ 1,000
West Germany	105	479	18
Italy	33	142	5
Belgium-Luxembourg	352	1,465	56
Great Britain	40	176	7
Iceland	35	177	7
Netherlands	80	329	13
Norway	2,794	13,222	509
Portugal	340	1,328	51
Switzerland	7	38	1
Japan	94	417	16
Angola	6,457	26,625	1,024
South African Union	50	264	10
United States	5	21	1
Argentina	47	175	7
Peru	2,279	8,905	343
Australia	105	577	22
Total	12,823	54,340	2,090

Practically all of the imported fish meal is used for the production of mixed feeds.

Prices range from 2,600 to 3,800 schillings a metric ton (US$100.00-146.15 a metric ton) free on Austrian border, according to country of origin, quality, protein content, and world market fluctuations. (United States Consulate, Vienna, February 20, 1961.)

Note: US$1.00 equals about 26.0 Austrian schillings.

Belgium

FISH-MEAL PRICES, MARCH 1961:

Belgium fish-meal prices early in March 1961 were about unchanged for domestic fish meals but slightly higher than a month earlier for imported fish meals. Imported Meal: 65 percent protein, US$80.60 per metric ton or about $73.12 a short ton, c.&f. Antwerp (80-90 percent digestible). Domestic Whole Meal (fish solubles added): 62 percent protein $99.20 a metric ton or about $90.00 a short ton f.o.b. plant (93-94 percent digestible). Domestic Regular Meal: 50-55 percent protein, $69.50-76.45 a metric ton or about $63.05-69.36 a short ton f.o.b. plant (about 90 percent digestible). (United States Consulate, Antwerp, March 6, 1961.)

British North Borneo

SHRIMP RESOURCES OFF NORTH BORNEO SURVEYED:

The Kagawa Prefecture Overseas Fisheries Co. in Shikoku has sent four vessels--the Kagawa Maru No. 1, 215 tons, and Kagawa Maru No. 2, 75 tons, and two trawlers of the 40-ton class from Takamatsu, Kagawa Prefecture, to Sandakan (located in the northeastern section of British North Borneo on the Sulu Sea), to explore the shrimp-fishing potential in that area.

The contract on the fishing vessels can be renewed at the end of three months, but whether or not a joint company may be established depends upon the results of the exploratory fishing. Besides the Kagawa Prefecture firm, two other Japanese fishery firms are also participating in the enterprise. (The Suisan Tsushin, January 7, 1961.)

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SHRIMP FISHERY OF STATE OF BRUNEI UNDEVELOPED:

According to a statement by the Government of the British North Borneo's State of Brunei, there is no organized shrimp industry in Brunei.

Shrimp are usually caught near the shore. The fishermen wade into the water, at times shoulder high, each one pushing a net in front of him. Little or no shrimp fishing is done from boats. Therefore, the catch at times is considerable and at other times negligible.

British North Borneo (Contd.):

Catches are seasonal and depend on localities. It is said that large catches are obtained in Brunei Bay during one short period in the year, usually about February. From the open seas the shrimp come inshore in large numbers, perhaps once every one or two months.

Shrimp fishing is a village industry. There are no freezing, canning, or other plants in Brunei. The catch is normally made into paste (Belachan) or dried. Such processing is done by the fisherman and his family. A small portion of the catch is sold fresh in the local market.

No statistics are available for the total annual landings of shrimp, which are made up of two varieties. The smaller and more abundant variety is known locally as "bubok buyah." The larger, averaging about 1½ inches in length, is locally known as "bubok tambak."

There is no export of shrimp or shrimp products from Brunei. The catch is insufficient to meet local demand and all shrimp fishing is a family-type venture.

Any possibility of expanding the industry is dependent on the discovery of further fishing grounds. However, little or nothing is known on this aspect and considerable research would be required before a substantial expansion could be attempted. (United States Consulate, Singapore, February 14, 1961.)

Note: The State of Brunei is west of the San Dakar area where the Japanese are surveying the shrimp resources of the Sulu Sea.

Canada

BRITISH COLUMBIA DOGFISH LIVER LANDINGS AS OF MARCH 15:

The dogfish liver landings in British Columbia under the Government Subsidy Program as of March 29, 1961, totaled 910,711 pounds and the subsidy paid for the livers amounted to C$109,285.

The subsidy on British Columbia dogfish livers was raised from 10 cents to 12 cents a pound in October 1960. The Canadian Government voted C$150,000 for special payment on dogfish livers, for the season ending March 31, 1961. This represents a 12 cents subsidy on 1,250,000 pounds of dogfish livers.

In the 1959/60 season, which started in mid-August 1959 and ended on March 31, 1960, a total of 1,500,000 pounds of livers were taken under the subsidy plan. The Government spent $150,000 at 10 cents a pound. Although $250,000 was available for the subsidy in 1959/60, not enough dogfish were caught to use all of that amount. (Western Fisheries, October 1960.)

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BRITISH COLUMBIA HERRING LANDINGS AND PRODUCTS, 1955/56-1960/61:

Herring landings in British Columbia during the 1960/61 season amounted to 171,941 short tons as compared with 185,153 tons landed in the 1959/60 season. Fishing activities in both the 1960/61 and 1959/60 seasons were curtailed somewhat due to market conditions for fish meal and disputes over ex-vessel prices. The yield of herring oil in

British Columbia Herring Landings and Products, 1960/61 Season with Comparisons

Season Ending:	Unit	March 18, 1961 1/	March 12, 1960 1/	March 14, 1959	March 15, 1958 1/	March 16, 1957	March 10, 1956
Landings:							
District No. 2:							
Northern	Tons	47,088	23,239	10,980	11,286	31,004	11,055
Central	"	43,505	10,919	40,628	14,965	36,213	50,084
Queen Charlotte Is.	"	2,896	3,121	23,058	13,774	29,089	92,637
District No. 3:							
Lower East Coast	"	31,309	55,582	51,648	18,284	43,389	48,978
Middle East Coast	"	10,023	20,014	10,183	9,932	20,001	30,156
Upper East Coast	"	2,978	10,005	15,015	3,470	15,045	951
West Coast	"	34,142	62,273	78,122	12,624	5,202	19,535
Total	"	171,941	185,153	229,634	84,335	179,943	253,396
Products Produced:							
Bait	"	1,619	848	1,046	2/	1,116	1,175
Meal	"	31,014	34,492	42,307	14,886	32,555	47,314
Oil	Imp. gals.	2,956,948	4,585,307	4,545,845	1,900,775	3,452,762	4,391,230
Canned	48-lb. cases	2/	2/	2/	2/	2/	2/

1/Limited operations.
2/Less than three companies reporting.
Source: Canadian Department of Fisheries (Pacific Area), Vancouver, B. C.

Canada (Contd.):

1960/61 was the lowest per-ton of raw herring in the past six years.

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NEW BRUNSWICK FISH-MEAL PRICES, MID-MARCH 1961:

Fish-meal prices (60 percent protein) quoted by New Brunswick, Canada, producers in mid-March this year were C$87-90 a short ton (C$1.45-1.50 a protein unit), up about C$6.00 a ton from the prices of mid-February 1961. Prices in February were C$81-84 a short ton (C$1.35-1.40 a protein unit) for both domestic and export sales. (United States Consulate, Saint John, N.B., March 14, 1961.)

Ceylon

MOTORIZATION OF PRIMITIVE CRAFT RAISES FISHERMEN'S CATCH:

In 1951, the Government of Ceylon decided to start mechanizing fishing boats, using the advice of Food and Agriculture Organization (FAO) experts and utilizing boat designs first developed by FAO naval architects in India for Indian fishing vessels. Many hundreds of existing boats were mechanized. Then in 1958, an ambitious plan called for 8,000 mechanized boats to be built within the next 10 years. An FAO naval architect was requested and a Finnish expert in the mass production of boats, engines, and tools was sent to Ceylon.

The Finnish expert studied the Ceylonese methods of boat building and the purpose for which the boats were needed. Then he designed a boat which introduced many improvements and is included among the 600 mechanized boats built in Ceylon during 1959 and 1960.

But the Finnish expert's most interesting work began when he proved that even the most primitive rafts (the teppans or sailing rafts) could be mechanized with outboard motors, boosting the Ceylonese fishermen's catch by almost 600 percent and their income by 300 percent. (The teppans are shallow craft built of several logs lashed together.)

He put 5-hp. outboards on big teppans and recorded the results. Without the engines, the boats averaged a catch of 358 pounds of fish monthly valued at 185 rupees (US$38.94).

Teppans or catamarans--fishing craft built of several pieces of wood put together very simply and a sail--are the type of craft used by many Ceylonese fishermen.

With the engines enabling the teppans to reach the distant and deeper fishing grounds, the mechanized rafts averaged 2,435 pounds of fish monthly, a catch valued at 1,462 rupees ($307.79). This 580-percent increase in catch was recorded in August 1960, which is considered a bad fishing month.

"There is a difference between mechanizing a boat, designing it for an engine plus net-handling gear, and motorizing a boat by the use of an outboard motor," said the Finnish expert. He added, "some 2,500 of the 7,500 large 30-foot teppans used in northern Ceylon could be motorized. We should try to use the local craft, with its many advantages such as shallow draft and no need of harbor facilities as much as possible, especially until the other mechanized boats and harbors are built."

The Finnish expert, who has returned to Ceylon to work with the mechanization program there until the end of 1962, plans to start experimenting with motorizing the small 16-foot teppans used in southern Ceylon

Ceylon (Contd.):

to see if the outboard motors will bring as good results as they did on the larger teppans in northern Ceylon.

The need for fish in Ceylon is obvious, for although the island country has 90,000 fishermen, it still has to import fish. The marketing and distribution system there needs to be streamlined, said the expert, for old-fashioned methods of marketing still keep the price of fish up.

Chile

EXPORTS OF FISH MEAL AND OIL, 1960 AND JANUARY-FEBRUARY 1961:

All exports of fish meal and oil during the first two months of 1961 by Chile originated with fish meal plants in Arica and Iquique which operate with a 20-30 percent subsidy. The export price of fish meal early in March was $72-$75 a metric ton ($65.32-68.04 a short ton). There has been an increase of about $10 a metric ton since the first of the year. This increase results from the shortage of Peruvian meal, according to trade sources.

Table 1 - Chilean Exports of Fish Meal and Oil, January-February 1961

Destination	Quantity	Value	Average Price	
	Metric Tons	US$	US$/ Metric Ton	US$/ Short Ton
January Exports				
Fish Meal:				
United States	797	50,400	63.22	57.35
Netherlands	1,647	123,850	75.19	68.21
Germany	295	25,200	85.57	77.63
Brazil	208	14,625	70.15	63.64
Totals and Averages	2,947	214,075	72.63	65.89
February Exports				
United States	99	9,182	92.75	84.14
Netherlands	648	55,725	86.00	78.02
France	120	7,440	62.00	56.25
Totals and Averages	867	72,347	83.44	75.70
January Exports				
Fish Oil:				
Germany	508.1	65,462	128.84	116.88
February Exports				
Germany	100	13,500	135.00	122.47

Source: El Informativo. Organo oficial de la Camara Central de Comercio de Chile y de la Camara de Santiago. Official export figures are published by the Central Bank of Chile.

The Central Bank of Chile has published revised statistics for the year 1960. These data show a substantial increase (from 26,433 metric tons valued at US$1,990,690 to 28,155 tons valued at $2,011,600) in the exports of fish meal obtained earlier from the same source. The revised figures, which are still preliminary, are as follows:

Table 2 - Chilean Exports of Fish Meal and Oil, 1960

Destination	Quantity	Value	Average Price	
	Metric Tons	US$ 1,000	US$/ Metric Ton	US$/ Short Ton
Fish Meal 1/:				
United States	19,025	1,352.5	123.65	112.18
Netherlands	3,141	213.0	67.82	61.53
Germany	1,479	112.6	76.14	69.07
Spain	1,467	88.7	60.47	54.86
France	1,189	100.6	84.60	76.75
Belgium	933	73.4	78.65	71.35
Italy	739	57.4	77.66	70.45
Mexico	100	6.8	68.41	62.06
Great Britain	59	4.3	73.01	66.23
Bolivia	23	2.3	99.57	90.33
Totals and Averages	28,155	2,011.6	71.45	64.82
Fish Oil 2/:				
United Kingdom	2,259	330.7	146.42	132.83
Germany	1,951	224.5	150.81	136.81
Norway	1,012	115.3	113.93	103.36
Denmark	600	73.7	126.17	114.46
Netherlands	150	18.5	123.09	111.67
Bolivia	2	0.2	86.96	78.89
Totals and Averages	5,974	762.9	127.70	115.85

1/Revised preliminary data.
2/Preliminary data.
Source: Boletin de Embarques, Banco Central de Chile, Departamento de Comercio Exterior Seccion Exportaciones, February 1961.

In March the three modern fishing boats brought to Chile for experimental fishing under a U. S. International Cooperation Administration contract moved to Iquique to fish for a fishing company in that port. Each trawler has about 70 tons capacity and is equipped with all the modern fishing aids. (United States Embassy in Santiago, March 7, 1961.)

Note: Also see Commercial Fisheries Review, March 1961 p. 49.

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FISHING FLEET RECONSTRUCTION AIDED BY FINNISH EXPERT:

A Finnish boat-building expert who has been aiding the Ceylonese fishing industry under the auspices of the Food and Agriculture Organization was detailed to Chile for three months after the earthquakes and tidal waves struck that country in May 1960, to aid in rebuilding the southern Chilean fishing fleet. His task was to organize the building of 400 small fishing boats and build them better than before.

A check of the southern Chilean shipyards showed that the builders were again building large rowboats, which are traditionally used for fishing and transportation among the islands of southern Chile, one of the largest archipelagos in the world.

Chile (Contd.):

"These boats have room for passengers, but not for fishing," the Finnish expert stated. So he modified the boats by designing an 8½-meter (27.9 feet) fishing boat, with a high bow and large open space to take in nets.

However, still with the idea of proving what mechanization can do when coupled with traditional methods of fishing, even using something as unlikely as a rowboat, the expert recommended that 30 two-man rowboats be equipped with outboard engines and nylon nets and that the results be recorded.

"I estimate that the catch nearly will double with one nylon net," said the Finnish expert. "The catch will more than double when a 5-hp. engine is added and it will go up 7 times when three nylon nets and a 10-hp. engine are used. The outboards will enable the rowboats to get to better and farther fishing grounds," he added.

Denmark

FISH MEAL AND SOLUBLES PRICES, FEB. 26-MAR. 4, 1961:

Export prices for Danish herring meal were being quoted at 725-790 Danish kroner per metric ton (US$95.37-103.92 a short ton) f.o.b. Esbjerg, during the week of February 26-March 4, 1961. One large shipment of fish meal to Poland brought 895 kroner a ton ($117.74 a short ton).

There were no export sales of fish solubles during the week ending March 4, 1961, but during the preceding week a substantial shipment was made to West Germany at an export price of 520 kroner per ton ($68.40 a short ton). (United States Embassy, Copenhagen, March 20, 1961.)

France

FISH MEAL AND OIL PRICES, DECEMBER 1960:

Average fish meal and oil prices reported for December 1960 by the head of the French Fish Meal Manufacturers Association were as follows:

	Protein Content (%)	NF/Metric Ton	US$/Short Ton
Fish Meal:			
French fish meal 1/	55	450	82.81
" " " "	60	500	92.01
" " " "	65	600	110.41
Peruvian fish meal 2/	60-65	520	95.69
Angola fish meal 2/	65	550-570	101.21-104.88
Norwegian herring meal 2/	73	730	134.33
	Fatty Acid Content (%)	**NF/Metric Ton**	**US$/Short Ton**
Fish Oil:			
French oil (herring, dark)	10	550	101.21
" " " light)	5-6	600	110.41

1/Ex-plant loaded aboard car or truck, 15 metric tons minimum.
2/Loaded aboard car French port, customs paid, 15 metric tons minimum.
Note: Values converted at rate of 4.93 new francs equal US$1.

(United States Embassy, Paris, January 16, 1961.)

German Federal Republic

REPORT ON WORLD-WIDE FISH MEAL PRODUCTION AND DEMAND:

A study of world-wide fish-meal production and demand has been made by the head of the Fisheries Section of the West German Food Ministry. The study was prompted by the fact that West Germany is the second largest consumer of fish meal in the world and that recent developments in the world market for fish meal have had a detrimental impact on the West German fishing trade.

After reviewing in his study the significance of fish meal for feeding purposes and of fish flour for human consumption, as well as postwar production developments, the head of the Fisheries Section arrived at the conclusion that until 1959 the world supply of fish meal was about 100,000-200,000 metric tons a year short of demand. In his opinion, this shortage was responsible for the relatively high fish-meal prices which prevailed until 1959. In spite of the upswing in world production of fish meal, caused primarily by expanded production in Peru beginning in 1959, he believes it is doubtful that there is actually an oversupply of fish meal in the world market. He attributes the slump in fish-meal prices which began in early 1960 primarily to ruinous competition among Peruvian exporters, and he believes that increasing demand will probably cause fish-meal prices to rise again in 1961, although not to preslump levels.

In his analysis of future developments, the head of the Fisheries Section states his belief that world fish-meal production will continue to rise, not only because countries with highly developed fisheries will increase the utilization of fish offal for reduction purposes, but primarily because developing countries with plans for expanding their fisheries will find fish-meal production the easiest way of utilizing their catches. He believes that demand for fish meal will increase also, but that fish meal will have to meet competition from vegetable-protein feeds (for instance, soya meal), enriched by synthetic amino acids and vitamin concentrates. He states that price will determine the future sales of fish meal, and quotes experts as saying that fish meal, delivered c.i.f. European seaport, will probably find a price ceiling of about $100-110 per metric ton.

In his opinion, fish-meal producers should make special efforts to open up new markets for fish meal (for instance, in Spain, Yugoslavia, Greece, and Israel) and that the production of fish flour should receive more attention. The German official is finally of the opinion that the more advanced

German Federal Republic (Contd.):

fishery nations, particularly those in Europe, will have to adapt themselves to future developments by utilizing their fish catches primarily for human consumption and by restricting fish meal production to the processing of fish offal and whatever landings cannot readily be absorbed by the market.

In advancing the opinion that the catching of fish solely for reduction purposes will eventually cease to be a profitable business for the more advanced fishery countries, particularly those in Europe, the West German expert apparently believes that the more developed countries cannot compete in this field with the developing countries.

Despite the difficulties which prompted this study, West Germany has so far not taken any measures to cope with the problems which have arisen for its fishery trade and its fishmeal industry as a result of the price slump following the expansion of Peruvian fish-meal production. Although only recently the West German Deep-Sea Trawlers Association again requested the Government to introduce an import levy for fish meal to operate in the same manner as the levy for grain, the German Federal Government, according to trade sources, has delayed action because it wanted to negotiate first with Peru, and also because there has been a certain opposition from the farmers against raising the price of fish meal. (United States Consulate, Bremen, March 3, 1961.)

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FISH MEAL PRICES, MARCH 10, 1961:

Prices reported at Hamburg Commodity Exchange as of March 10, 1961, for fish meal delivered ex-Hamburg warehouse, or c. & f. West German sea port (see table).

Fish meal prices on the Hamburg exchange on March 10, 1961, were somewhat lower for both domestic and imported fish meal on prompt delivery, but trended higher on futures. (United States Consulate, Bremen, March 13, 1961.)

Type of Fish Meal	Protein Content (%)	Delivery	DM/Metric Ton	US$/Short Ton
German fish meal	50-55	Mar.-May 1961	465	105.46
" " "	60-65	" " "	480	108.86
" " " std. brands	60-65	March 1961	572.50	129.84
Peruvian fish meal	65-70	prompt	435-440	98.66-99.79
" " "	65-70	Apr.-June 1961	455	103.19
Angola fish meal	65-70	prompt/Apr. 1961	535	121.34
Icelandic herring meal	63-68	Aug.-Oct. 1961	595	134.95
Icelandic cod meal	65-70	Mar. 1961	605	137.21
Danish herring meal	70-75	Apr.-June 1961	605	137.21

Note: Values converted at rate of 4.00 deutsche marks equal US$1.

Guatemala

JAPANESE-GUATEMALAN SHRIMP FISHERY PLANNED:

Preparations were being made in mid-February 1961 for two Japanese companies to establish a joint Japanese-Guatemalan firm to fish for shrimp off Central America. Experimental operations by a Guatemalan fishery company beginning December 1960 proved extremely satisfactory. Using 10 fishing boats of the 50-ton class (chartered Panamanian vessels), the shrimp catch was some 80 tons per month, several times as much as the yield of shrimp fishing in the East China Sea area.

The experimental operation was carried out under Japan's technical guidance and investment, and the fishing ground at its nearest point is 5-6 miles offshore where water is only about 10 meters deep. The cost of the operation is small. For the present, there is only a small cold-storage plant at Champerico, and its capacity is not large enough to take care of landings which have been far beyond expectation.

The new joint Japanese-Guatemalan fishery company is expected to be established in April-May 1961 with a capital of $1 million (49 percent supplied by Japanese and 51 percent by Guatemalan interests). Landings of 300 tons a month, using some 30 fishing vessels, or 3,500 tons per year are planned. (The Suisan Tsushin, February 18, 1961.)

Note: Champerico is on the Pacific Coast of Guatemala where shrimp fishing is good year-round.

Iceland

FISHING INDUSTRY LABOR DISPUTE SETTLED EXCEPT FOR WESTMAN ISLANDS:

The fishermen's unions at Reykjavik, Hafnarfjordur, and Akranes reached agreement with the motorboat owners on February 19, 1961, regarding wage and share terms which cover primarily the inshore spring cod and haddock fisheries. The only remaining labor trouble as of February 23 in the industry was in the Westman Islands. The settlement conformed to the agreement reached January 24 as the result of countrywide bargaining, with a few minor adjustments covering local conditions.

During the month-long labor dispute, many of the fishermen signed on vessels in other towns and the vessel owners in the Reykjavik, Hafnarfjordur, and Akranes areas were unable to find sufficient crewmen. (United States Embassy, Reykjavik, February 23, 1961.)

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GOVERNMENT RESOLUTION TO SETTLE FISHING LIMIT DISPUTE WITH BRITISH:

On February 27, 1961, the Icelandic Government submitted for Althing approval a resolution authorizing the Government to settle the dispute with the British over fishing limits. The four main points of the resolution are:

(1) Britain recognizes immediately the 12-mile fishery zone of Iceland.

(2) Britain recognizes important changes in the base lines in four places around the country which extend the fishery zone by 5,065 square kilometers.

(3) British vessels will be permitted to fish within specific areas between the 6- and 12-mile limits for a limited length of time each year during the next three years.

(4) The Government of Iceland declares that it will continue to work for implementation of the parliamentary resolution of May 5, 1959, regarding the extension of the fisheries jurisdiction around Iceland, and that any dispute on actions that may be taken be referred to the International Court of Justice. (United States Embassy, Reykjavik, March 7, 1961.)

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REGULATIONS ON TRAWLING WITHIN 12-MILE FISHING ZONE ISSUED:

The Government of Iceland has issued new trawling regulations applicable both to foreign and Icelandic vessels for the waters off Iceland, effective March 11, 1961. These regulations are complicated, but in essence, where British trawlers have gained advantages, Icelandic trawlers have been given at least comparable treatment. Trawling by vessels of all other nations must take place outside the 12-mile fishing limits. Changes in base lines, allowed by the British agreement, have pushed the 12-mile limits seaward, embracing an additional 5,065 square kilometers of fishing grounds.

The Government instructed the Icelandic Coast Guard to deal leniently with non-British vessels which might engage in trawling within the new protected area set up by the bilateral agreement between Iceland and Great Britain. The Coast Guard charged the British fishing vessel Othello of Hull with trawling within the protected area on March 19. The vessel was brought to Reykjavik and fined the equivalent of over US$6,000. Its catch and fishing gear also were confiscated. However, the trawler captain has appealed the case to the Icelandic Supreme Court, the United States Embassy in Reykjavik reported on March 24, 1961.

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TRAWLER OWNERS CONTINUE AGREEMENT NOT TO LAND FRESH FISH IN BRITAIN:

The Icelandic Trawler and Fishing Vessel Owners continued their voluntary agreement not to land fresh fish in British ports, despite the settlement on March 11, 1961, of the fisheries dispute with Great Britain with reference to Icelandic fishing limits.

The Icelandic press reported that the British Trawler Officers Association has threatened to go on strike if Icelandic vessels began fresh fish landings. The Association had demanded that the British Government offer assurances that Iceland would not further extend its fishing limits, states a March 24, 1961, dispatch from the United States Embassy in Reykjavik.

Japan

CONSTRUCTION OF TUNA VESSELS CONTINUE INCREASE:

Japanese construction of pelagic tuna vessels continues to increase and every shipyard has more orders than they can handle. The two shipyards in Shimizu, Shizuoka Prefecture, are building more than half of the tuna vessels being constructed in Japan.

In 1960 one of the shipyards in Shimizu constructed 28 vessels (9,740 tons), of which 26 were tuna vessels. The second shipyard built 39 vessels (12,450 tons), of which 26 (9,190 tons) were tuna vessels. The construction of tuna vessels by the two shipyards in 1960 was 60 percent greater than the 33 vessels (11,400 tons) built in 1959. These tuna vessels are of the 300-ton class, and the vessel owners are located in Shizuoka Prefecture, including Yaizu and Omaezaki, also in Ibaragi and Kanagawa Prefecture.

The construction of tuna vessels after World War II became active in 1947 and 1948 to replace those that became useless or were sunk during the war. It was called the first construction boom of tuna vessels. The second boom occurred in 1952 and 1953 when the MacArthur Line was abolished and building of larger fishing vessels became possible under a new law; and 10,000 tons to 18,000 tons of tuna vessels were built in Japan.

The third boom arrived in 1956 with the development of the fishing grounds in the Indian Ocean in 1955, and larger vessels became the rule. The average vessel tonnage rose from 370 tons in 1953 to 500 tons in 1956 when 18,000 tons were built.

The present boom began in 1959, reflecting the favorable conditions of the industry in general and coincided with the replacement of vessels constructed after the war. In that year in Japan, a total of 76 tuna vessels (25,000 tons) were launched. The development of fishing grounds in the Atlantic and a decline in salmon fishing and Antarctic whaling encouraged the tuna vessel boom and the increase in the prices of fishing-vessel rights accelerated it.

Three years have elapsed since the beginning of the last tuna-vessel building boom, and signs indicate that it will continue unless there is a business setback.

So far orders for more than 60 vessels have been received at both Shimizu shipyards this year, and conditions are such that no space is available for setting up another keel before the end of the year. How to handle orders that are expected for the balance of this year is said to be a problem for those in charge of construction work at the shipyards. (Fisheries Economic News, March 4, 1961.)

* * * * *

INDIAN OCEAN BLUEFIN TUNA FISHING POOR:

Concern is being expressed over the unexpected poor fishing by Japanese tuna vessels for Indian bluefin tuna in the Indian Ocean and in the waters off the Java coast and to the west of Australia. This fishery for Indian bluefin tuna, which is highly prized on the Japanese market as "sashimi" (raw fish cut in thin slices and flavored with soy sauce), normally starts in October and extends to April of the following year.

According to reports, poor fishing during the early part of the current season has compelled many vessels to remain on the fishing grounds for longer periods, as long as 20 days, thereby compelling them to miss the profitable New Year's trade. Catches in late November to mid-December are said to have averaged less than three metric tons a day, or about half of what they were a year ago.

Fishing picked up in late December, with catches averaging about 6 metric tons a day per vessel; catches then dropped to about 3 metric tons a day in early January, increased to 10 metric tons in mid-January, and dropped drastically in late January. Fishermen believe that this 10-day cyclical change in fishing conditions may be associated with the moon-phase. They claim that catches fell drastically on moonlit periods.

Due to the difficulty in finding good fishing grounds and fluctuating catches, some of the larger long-line vessels engaged in this fishery switched to the big-eyed tuna fishery east of 100° E. longitude, where catches of 10 metric tons a day of big-eyed tuna were reported.

However, exploratory fishing conducted by the Shizuoka prefectural research vessel Daifuji Maru in the area south of 35° S. latitude indicates that catches may fluctuate periodically but bluefin should be available over a wide area until April. (Nippon Suisan Shimbun, February 13, 1961.)

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NORTH-BORNEO TUNA FISHING ENTERPRISE TO EXPAND:

The Japanese fishery firm engaged in a North Borneo-Japanese tuna-fishing enterprise is said to have decided to expand the operations established in cooperation with the British North Borneo Government in May 1960.

The Japanese-North Borneo enterprise was established with 100 percent investment by the Japanese firm at a base on a small island, using the Ginyo Maru, freezer-factory-ship of the 4,000-ton class, and six skipjack hook-and-line boats of the 35-ton class. The catch is processed into dried skipjack sticks and exported to Ceylon.

The Japanese firm intends to strengthen operations on land as well as at sea and early in 1961 a cold-storage facility was planned for the base and a new fishing ground may be developed using a purse-seiner of the 160-ton class. The cold-storage facility will have a capacity of 60 tons and ice-making

Japan (Contd.):

capacity of 20 tons a day. Since the use of small skipjack hook-and-line vessels limits the efficiency of the operation, the skipjack purse seiner (Taiho Maru) will be added and experimental fishing will be carried out in the the Sulu Sea and around the island base. If successful, the Japanese company intends to replace the inefficient small vessels with larger vessels. (Fisheries Economic News, January 3, 1961.)

* * * * *

JAPAN-URUGUAY TUNA FISHING ENTERPRISE:

The Eikyo Maru, 300 tons, belonging to a large Japanese fishery firm, left Tokyo for Uruguay early in 1961 to participate in joint tuna fishing between another Japanese fishery firm and a Uruguay fishing group. It was scheduled to arrive at its destination in mid-February 1961. The vessel was expected to start tuna fishing with a base at Montevideo under a 3-year contract and to land some 1,000 metric tons, principally yellowfin and albacore, per year. (The Suisan Tsushin, January 4, 1961.)

* * * * *

TUNA FISHING TRENDS IN THE ATLANTIC OCEAN:

The Kanagawa Prefecture Fisheries Experimental Station in Japan reported on tuna fishing conditions in the Atlantic Ocean as experienced by Japanese fishing vessels.

According to the report, tuna fishing in the Atlantic is carried out by an increasing number of vessels. The Japanese began fishing in the Atlantic in 1956. In 1959, 36 Japanese vessels operated in the Atlantic and the number increased to 50 in 1960. The increase in vessels fishing in the Atlantic is attributed (1) to the fact that tuna fishing, both in the Pacific and Indian Ocean, is believed to have reached its saturation point and (2) larger vessels of up to 1,000 tons are capable of fishing in distant waters.

In 1960, the fishing grounds in the eastern section of the Atlantic yielded a catch rate of 7.5-11.25 tons per trip in the beginning, but the rate dropped to 4.5-4.9 tons. In the western region of the Atlantic, the catch rate also started to decline in 1957. The absolute quantity of tuna decreased while the number of vessels fishing increased. In 1961, the Japanese plan to conduct research in the Atlantic to determine the causes for the decreasing catch rates and also study the biology of Atlantic tuna.

The principal landing ports for tuna caught by Japanese vessels fishing in the Atlantic are Freetown (Guinea), Montevideo (Uruguay), Las Palmas (Canary Islands), Venice (Italy), Cristobal (Canal Zone), and others. (Japanese newspaper, March 3, 1961.)

* * * * *

FISH-SAUSAGE MAKERS ASK FOR MORE TUNA:

The Japanese Fish Sausage Association has thrown its support to the Tuna Mothership Council in its bid to obtain a larger tuna quota. The Association is asking for an increase in the tuna mothership quota and that the increase be set aside for fish-sausage production.

According to the Association, production of fish sausage in 1955 totaled 9,417 metric tons and in 1959, 71,516 metric tons. Production in 1960 will likely be over 85,000 metric tons; in 1961 over 100,000 metric tons. Use of tuna as an ingredient for fish sausage has increased from two percent of total tuna landings in 1954 to over 20 percent (14,300 metric tons) in 1959. Supplies are becoming increasingly inadequate. Thus, the Government should authorize increases in the tuna mothership quota, and such increases utilized for fish-sausage production. (Shin Suisan Shimbun Sokuho, February 15, 1961.)

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EXPORTS OF FISHERY PRODUCTS, 1960:

In 1960, Japan exported a total of 175,627 metric tons of fishery products other than canned, valued at US$58.4 million. The United States, the greatest single customer for those products, bought 45 percent of the total, or 79,087 tons valued at US$28.8 million. In addition, Japan exported 131,074 metric tons of canned fishery products, valued at US$116.2 million. The United States again was the most important single buyer and bought 22 percent of the total, followed closely by the United Kingdom with 17 percent (see table 1).

In 1960, Japan also exported 234 million pounds of marine oils valued at US$23.7 million. The leading buyers were the Nether-

Japan (Contd.):

Table 1 - Japan's Exports of Principal Fishery Products, by Country of Destination, 1960

Product and Country of Destination	Quantity	Value	
	Metric Tons	1,000 Yen	US$1,000
Fish and Fish Products, Crustaceans and Molluscs, not in Airtight Containers:			
United States	79,087	10,387,483	28,838
Ryukyu Islands	6,842	616,625	1,712
Hong Kong	2,210	856,196	2,377
Formosa	684	120,915	336
Malaya	323	45,770	127
Singapore	1,274	206,774	574
Burma	2,101	121,819	338
United Kingdom	2,262	884,158	2,455
Italy	19,393	1,544,216	4,287
Canada	1,832	317,422	881
Puerto Rico	6,301	706,211	1,961
Hawaii	2,745	546,855	1,518
American Samoa	11,685	1,132,560	3,144
Others	38,888	3,552,184	9,862
Total	175,627	21,039,188	58,410
Fish and Fish Products, Crustaceans and Molluscs, in Airtight Containers:			
United States	29,329	10,392,174	28,851
Ryukyu Islands	4,077	476,706	1,323
Hong Kong	1,127	140,648	390
Malaya	1,811	188,483	523
Singapore	2,220	254,874	708
Philippines	14,912	1,873,038	5,200
Indonesia	541	63,668	177
Burma	2,381	211,768	588
Ceylon	3,407	365,683	1,015
Saudi Arabia	333	81,669	227
Sweden	350	195,320	542
United Kingdom	24,421	16,572,166	46,008
Ireland	491	206,001	572
Netherlands	2,167	707,525	1,964
Belgium-Luxembourg	4,942	1,463,577	4,063
West Germany	6,892	1,578,614	4,383
Switzerland	1,361	362,837	1,007
Italy	363	115,194	320
Canada	3,040	859,011	2,385
U. A. R. (Egypt Region)	4,250	592,002	1,644
Ghana	2,995	450,837	1,252
South Africa	326	134,515	373
Australia	3,758	1,567,124	4,351
Hawaii	385	184,329	512
Others	15,195	2,802,708	7,781
Total	131,074	41,840,471	116,159

lands, West Germany, United Kingdom, Belgium, Sweden, in order of importance. The United States was not as important a buyer as the countries mentioned (table 2).

Table 2 - Japan's Exports of Marine-Oils, by Country of Destination, 1960

Product and Country of Destination	Quantity	Value	
	1,000 Pounds	1,000 Yen	US$ 1,000
Oil from Fish and Marine Animals:			
United States	3,508	764,759	2,123
Lebanon	60	4,228	95
Norway	1,016	88,618	246
Sweden	11,291	367,807	1,021
United Kingdom	52,279	1,715,017	4,761
Netherlands	72,122	2,276,339	6,320
Belgium	33,702	1,050,095	2,915
France	471	269,108	747
West Germany	52,786	1,604,347	4,454
Canada	59	29,396	82
Others	6,743	319,581	888
Total	234,037	8,519,295	23,652

Japanese exports of canned fishery products to the United States in 1960 were 31.1 percent below those for 1959. On the other hand, total exports for the same period were down only 10.4 percent.

Japan's total shipments of fish and shellfish other than canned in 1960 were up 8.4 percent as compared with 1959, but exports to the United States dropped 4.7 percent (table 3). On the other hand, exports to countries other than the United States were up 22.2 percent.

Japan's exports of fish and marine animal oils to the United States in 1960 were only

Japan (Contd.):

Table 3 - Japan's Exports of Principal Fishery Products, 1959-60

Product and Destination	1960			1959		
	Quantity	Value		Quantity	Value	
	Metric Tons	1,000 Yen	US$ 1,000	Metric Tons	1,000 Yen	US$ 1,000
Fish and Fish Products, Crustaceans and Molluscs, not in Airtight Containers:						
United States	79,087	10,387,483	28,838	83,061	10,523,453	29,207
All Others	96,540	10,651,705	29,572	78,985	9,013,037	25,015
Total	175,627	21,039,188	58,410	162,046	19,536,490	54,222
Fish and Fish Products, Crustaceans and Molluscs, in Airtight Containers:						
United States	29,329	10,392,174	28,851	42,568	15,075,258	41,840
All Others	101,745	31,448,297	87,308	103,731	29,673,384	82,355
Total	131,074	41,840,471	116,159	146,299	44,748,642	124,195

Table 4 - Japan's Exports of Marine Oils, 1959-60

Product and Destination	1960			1959		
	Quantity	Value		Quantity	Value	
	1,000 Pounds	1,000 Yen	US$ 1,000	1,000 Pounds	1,000 Yen	US$ 1,000
Oil from Fish and Marine Animals:						
United States	3,508	764,759	2,123	3,405	663,923	1,843
All Others	230,529	7,754,536	21,529	224,951	7,815,573	21,691
Total	234,037	8,519,295	23,652	228,356	8,479,496	23,534

slightly greater than in 1959. Total exports were up 2.5 percent (table 4). (Monthly Return of the Foreign Trade of Japan, Ministry of Finance, Tokyo, December 1960 and December 1959.

Note: Values converted at rate of 360.2 yen equal US$1 in 1960 and 360.3 yen equal US$1 in 1959.

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FISH-MEAL PRICES, NOV.-DEC. 1960 AND JAN. 1961:

Average wholesale and export fish-meal prices for January 1961 and revised wholesale prices for November and December

Japanese Fish-Meal Prices, Nov.-Dec. 1960 and January 1961

	Domestic Wholesale Prices		Export Price (f.o.b.)	
	US$ Per Metric Ton	US$ Per Short Ton	US$ Per Metric Ton	US$ Per Short Ton
1961:				
January . .	2/160.00	145.15	1/	1/
1960:				
November	2/157.50	2/142.88	138.00	125.19
December	2/158.06	2/143.39	136.80	124.10

1/Not available. 2/Revised.

1960 quoted by the Aquatic Oils Association of Japan are shown in the table. (United States Embassy, Tokyo, February 27, 1961.)

* * * * *

PERMISSION TO IMPORT FISH SOLUBLES FROM U. S. REQUESTED:

A Japanese grain company in February 1961 filed an application with the Ministry of International Trade and Industry (MITI) to import 1,000 tons of fish solubles from the United States at a price of $80.55 per metric ton c.i.f. MITI is studying the proposal carefully since it bears some connection with fish-meal imports. There is also the problem of dollar allocations, which would have to come from the 1961 budget.

Fish solubles for animal feed presently sell for 26,000 yen (US$72.22) a metric ton in Japan. This is somewhat cheaper than imports. However, demand for animal feed is expected to increase, and it is felt that a profit can be made even after paying higher prices for imports.

Production of fish solubles in 1960 is reported to be 450 tons from fish-meal factoryships, 15,000 tons from coastal meal operations, plus an additional 250 tons from miscellaneous sources. Domestic animal-feed producers utilized most of the production but some quantities were exported to Formosa and Okinawa. (Nippon Suisan Shimbun, February 20, 1961.)

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OVERSEAS FISHERY OPERATIONS FOR 1960:

According to a list of Japanese overseas fishery operations (as of December 1, 1960) compiled by the Japanese Fisheries Agency, the number of such enterprises was the highest recorded since World War II. It is expected that the number reported in 1961

Japan (Contd.):

will be even greater. (The Suisan Tsushin, February 17, 1961.)

The development of fisheries overseas in 1960 was as follows:

Japanese Overseas Fishery Operations as of December 1, 1960

Country	Type of Operation	Types of Fishery
Brazil	Joint investment	Tuna, whale
Brazil	Sale of fish	Tuna
Argentina	Chartered vessels	Trawling
Cuba	Sale of fish	Tuna
Thailand	Fishing labor	Trawling
Ceylon	Fishing labor	Tuna, stick-nets, hook and line
Ceylon	Sale of fish	Tuna
Malaya	Sale of fish	Tuna
Ryukyu	Chartered vessels	Mackerel hook and line
Ryukyu	Chartered vessels	Tuna
North Borneo.	Capital investment	Skipjack cold-storage and processing
North Borneo.	Chartered vessels, sale of fish	Skipjack purse seine
North Borneo.	Chartered vessels	Trawling
Philippines	Fishing labor	Coastal Fisheries
Iran	Chartered vessel	Trawling
Italy	Sale of fish	Trawling
Italy	Fishing labor	Purse seine, tuna
Netherlands	Joint whaling operation	Freezer-carrier
Tonga	Fishing labor	Coastal fisheries
Israel	Sale of fish	Tuna

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OYSTER PACKING SEASON BEGINS:

The Japanese packing season for canned oysters in the Hiroshima area began early in March. This year's pack is expected to total 8.3 million pounds or 220,000 actual cases (100,000 cases of "smoked" and 120,000 cases of "boiled"). Including 40,000 cases (10,000 cases of "smoked" and 30,000 cases of "boiled") planned to be packed in the Sanriku area, the total Japanese pack will be 260,000 cases.

Packing oysters.

There are 70,000 cases of "smoked" on hand from last year's pack. This means that the amount available for marketing this year will be 330,000 actual cases (180,000 cases of "smoked" and 150,000 cases of "boiled"). (Suisan Tsushin, March 9, 1961.)

* * * * *

APPLICATIONS FOR TRAWLING SOUTH OF ALASKA PENINSULA REJECTED:

The Japanese Fishery Agency has rejected applications for permits to Japanese trawling firms to fish in waters south of Alaska Peninsula. These applications were filed late in 1960 by the leading Japanese fishing firms. The reason for rejecting the applications was the possibility of the trawling operations catching halibut.

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PLAN TO FISH HERRING AND BOTTOMFISH SOUTH OF ALEUTIAN ISLANDS:

Four large Japanese fishery firms are planning to send fleets to fish herring and bottomfish south of the Aleutian Islands during the fishing season beginning in April. The Japanese industry wants to limit the participants to the three companies that carried out experimental operations last year. One of the companies is said to be making preparations for herring fishing with a freezer-mothership of the 2,000-ton class even if authorities are not inclined to permit bottomfish fishing. (Suisan Tsushin, March 9, 1961.)

* * * * *

SARDINE PACK QUOTA FOR 1961 SET:

The Japanese sardine packers association held its directors meeting in February 1961 and approved 1961 regulations. The regulations are almost identical to those for 1960 and the total pack quota for sardines is 1,005,000 cases--525,000 cases for the fixed base quota, 225,000 cases for the free-based quota, 5,000 cases for the newcomers, and 250,000 cases for the reservation quota. The limit for each member's use of the free-base and reservation quotas is 10,000 cases. (The Suisan Tsushin, February 23, 1961.)

Liberia

JAPANESE FIRM TO BUILD FISH STORAGE AND PROCESSING FACILITIES:

One of the largest Japanese fishing companies, in combination with European and Liberian interests, is preparing for the establishment of a large fish-processing and storage facility in Monrovia, Liberia. To be built for an estimated US$1 million, this facility will service a fleet of between 17 and 23 tuna vessels operating in West African waters.

Plans call for construction of a $400,000 processing and freezing plant with a daily processing capacity of 20 tons of frozen tuna, and a frozen storage capacity of 2,000 tons. It will also include an ice-making plant to supply the vessels. The facility will take 18 months to build and, when completed, will employ 5 Japanese and 35 or more Liberians. Eventually it is hoped that the plant will handle as much as 20,000 tons of fish per year with a commercial value of $4 million or more.

Pending completion of its new plant, the Japanese firm has already begun limited operations in Liberia based on use of a mothership now berthed at the Free Port of Monrovia. This ship is being fed by 4 or 5 vessels now fishing off the Liberian coast. This fishing fleet will be increased gradually as the new plant approaches completion, at which time the mothership will be withdrawn.

The plant will be located on about 2.5 acres of reclaimed land inside the north breakwater of the Free Port, about a quarter mile from shore. In addition to the production facility, this area will include office and living quarters for the administrative staff as well as a 20-bed rest home for the crews of the fishing fleet, and a Diesel-electric plant to provide a completely self-contained operation. Eventually the firm may even build its own dry-dock for repair of its vessels from the entire West-African Coast. The Japanese firm for the last three years has operated this fleet of up to 23 vessels from a base in Sierra Leone. (United States Embassy in Monrovia, March 22, 1961.)

Mexico

SCIENTISTS FIND FISH FLOUR PROMISING AS AN ADDITIVE TO FOODS:

A group of doctors headed by the Director, Hospital Infantil de Mexico, for the past several years, has been experimenting with deodorized whole fish flour as an additive to diets for human consumption. Some of their conclusions to date are:

Metabolic Balance Studies: "Although it is still necessary to compare a larger number of cases, what has been observed so far is a clear evidence of the high biological value of fish flour to enrich a poor quality basal diet."

Clinical Studies: "The results of the clinical study may be summarized: (1) Adding fish flour complement to the normal diets we gave to malnourished children did not modify the satiety index. (2) The expected tendency of the growth curve was not changed. (3) No allergic manifestations resulted. (4) No toxic manifestations resulted."

Dietetic Study: "So far, 2,800 different assays have been carried out with the following results:

"We could not find a practical way to add fish flour to infants' formulas, whatever the mixture used in their preparation: broths prepared with cereals, vegetables, etc.

"We found it possible to add, in varying percentage, fish flour to soups, beans, hard biscuits, cereals, tortillas, bread, pureed vegetables."

"The percentage we have, so far, found practical are: corn meal (for tortillas) 5 to 7 percent, bread 10 percent, beans 5 to 7 percent, noodles 10 to 15 percent, hard biscuits 10 percent, cereals 5 percent, doughnuts 10 percent, and pastries 10 percent."

"Fish flour may be added to corn meal before it is ground. To hard biscuits, it is easily added at the bakery during the baking process. To noodles (dry doughs for soups) it may also be added during the process of preparation. The complement may be added to beans after cooking, or after they are ground and ready for frying."

"The stability of foods treated with fish flour has been found indefinite for hard biscuits and noodles. The stability is less for foods of immediate consumption, such as tortillas, bread, purees, soups, beans, pastries, etc.; but it is sufficiently good to permit the easy and tasteful consumption on the same day of preparation, or on the next one."

"As fish flour is not detected in any of the foods mentioned, or at the most, there is a slight darkening of the usual color, the human groups (adults and children) in whom we tested the acceptancy, did not become aware they were consuming food with varying percentages of the complement added to it."

In another section of the report the doctors state:

"However, we believe we are on the verge of reaching a feasible and practical solution with the use of a complement of high biological value, and great nutrient power, which would be added to basic foods without changing their taste or their odor, but that would remarkably reinforce the values of the diet. We are referring to deodorized fish flour." (United States Embassy, Mexico, D. F., March 7, 1961.)

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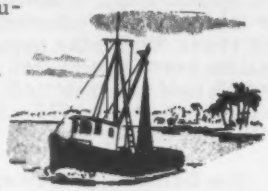
SHRIMP FISHERY TRENDS, JANUARY-MARCH 1961:

Excellent shrimp landings by the Salina Cruz (Pacific Coast) shrimp fleet and con-

Mexico (Contd.):

tinued northers in the Gulf of Mexico, which have hampered operations of the Carmen-Campeche fleets, have been the highlights on the Mexican shrimp scene during January-February 1961.



Shrimp boat.

Salina Cruz trawlers were reported to be landing from 4 to 6 metric tons of headless shrimp per trip. Trips are usually about 12 days.

At Carmen and Campeche landings averaged about 1,000 and 1,500 pounds of headless shrimp each trip with pinks predominating. A continual succession of northers

Shrimp Ex-Vessel Prices at Carmen and Campeche (All Species), January 5, 1961, and March 1, 1961

No. Headless Shrimp Per Lb.	January 5, 1961	March 1, 1961
	(U.S. Cents Per Lb.)	
10-14	53	56
15-20	52	54
21-25	47	49
26-30	43	44
31-35	38	39
36-40	33	34
41-50	28	29
51-65	23	24
Over 66	18	19

slowed down fishing operations. Conditions were not expected to improve much until April. Ex-vessel prices at Carmen and Campeche increased from 1 to 3 U. S. cents a pound since early January 1961. (United States Embassy, Mexico, D.F., March 6, 1961.)

Morocco

FISH MEAL AND OIL EXPORT PRICES, DECEMBER 1960:

Prices for fish meal and oil in Morocco are not readily available. Some indication of fish meal and oil prices can be obtained from the data supplied by the Office Cherifien de Controle et d'Exportation which represent official customs statistics. Prices are f.o.b. the Moroccan ports from which the product was shipped and are those assigned by the Customs authorities for imposition of an export tax. They do not necessarily represent actual prices paid for the product.

Average Moroccan Export Prices for Fish Meal and Oil, December 1960

Product & Destination	Average Export Prices	
	Mf/Metric Ton	US$/Short Ton
Fish Meal:		
Switzerland	1/172,000	308.38
Mali	1/170,000	304.78
Madagascar	71,933	128.21
Algeria	60,198	107.29
Spain	52,410	93.41
Singapore	49,004	87.35
France	47,250	84.22
Poland	32,000	57.03
Fish Oil:		
Denmark	55,003	98.03
Germany	53,229	94.87
Holland	36,132	64.40

1/Presumably edible fish flour.
Note: 506 Moroccan francs equal US$1.

No distinction is made in Customs nomenclature between fish meal and edible fish flour. (United States Consulate, Casablanca, February 23, 1961.)

Netherlands

FISH MEAL AND OIL INDUSTRY AND MARKET, 1959-60:

The average import price in the Netherlands for fish-body oil at the end of October 1960 was $153 per long ton (6.9 cents a pound). During the same period, fish meal (protein about 70 percent) prices were about fl. 245 (US$64.93) a metric ton.

A 5.5-percent turnover tax is levied on the imported value of fish meal, the same tax levy as on domestically-produced fish meal. There are no other duties or quantitative restrictions on the imports of fish meal and fish oil.

The Netherlands fish meal and oil reduction industry uses conventional production methods. The Netherlands fishing fleet does not catch fish especially for reduction. Reduction plants obtain fish when they cannot be sold for human consumption.

There are three reduction plants in the Netherlands, located at Ymuiden, Rotterdam, and Son.

The United States is the largest supplier of fish oil to the Netherlands. Fish-oil im-

Netherlands (Contd.):

ports from the United States in 1959 amounted to 12,000 metric tons or 57 percent of the total fish-oil imports of 21,000 tons, and in the first half of 1960 totaled 7,500 tons or 68 percent of the total imports of 11,000 tons. The Netherlands margarine and soap industries are the principal buyers of fish oil. Because the United States already supplies such a large portion of the Netherlands fish-oil requirements, there is not much opportunity for expansion of United States fish-oil exports to the Netherlands. (United States Embassy, The Hague, November 10, 1960.)

Note: Values converted at the rate of one guilder (fl.) equals US$0.265.

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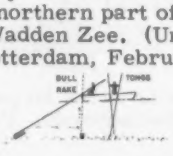
GOVERNMENT AID PLANNED FOR OYSTER AND MUSSEL CULTIVATION:

The Netherlands Government has decided to go ahead with plans for a 9-million-guilder (US$2,386,000) salt-water basin in the Veerse Gat, Zeeland estuary, for the cultivation of an estimated 10 million oysters a year to compensate for the loss of existing oyster-breeding grounds when the giant Delta Plan reclamation works are carried out in Zeeland province. Cultivated Dutch oyster and mussel exports are valued at about 15 million guilders (US$3,977,000) annually. Production of cultivated oysters averages about 20-25 million oysters annually. Therefore, the new program would provide for only about 50 percent of the current annual crop.

The Dutch Government made its decision on the recommendation of marine biologists who recommended the construction of a basin with a surface area of eighty hectares (197.7 acres).

Construction of the artificial basin will start next year and it will be 1969 or 1970 before it is known whether the new form of oyster cultivation will be a commercial success. The necessary bills have been submitted to Parliament.

The mussel cultivation, which is now located in the same Zeeland area as that now used for oyster cultivation, will be moved to the northern part of the Netherlands in the Wadden Zee. (United States Consulate, Rotterdam, February 20, 1961.)



Norway

AGREEMENT WITH BRITAIN ON EXTENSION OF NORWAY'S FISHING LIMITS APPROVED:

The Norwegian Parliament, on February 13, unanimously ratified the agreement with Great Britain on extension of Norway's fishing zone. Under the pact, British trawlers will be permitted to fish in a zone between 6 and 12 nautical miles off the Norwegian coast until October 31, 1970. After that date, they will have to stay outside the 12-mile limit.

The British-Norwegian agreement is contingent on Parliamentry approval of a Government bill proposing a two-stage extension of the fishery zone off the Norwegian coast and the island of Jan Mayen. The bill calls for extending the limit from 4 to 6 nautical miles on April 1, 1961, and from 6 to 12 miles on September 1, 1961. In this connection, the Government has requested a supplementary appropriation of Kr. 3,870,000 (US$541,800) to strengthen Norway's fishery enforcement service by chartering six whaling vessels. Equipped with guns, these vessels would be manned and operated by the Norwegian Navy. (News of Norway, February 23, 1961.)

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GOVERNMENT'S PROPOSED TRAWLER BAN CONTESTED:

Norway's Prime Minister, at a press conference early in March 1961, expressed hope that the Parliament's expanded Foreign Affairs Committee, which now is examining the Government bill on extension of the Norwegian fishery zone, would be able to work out a compromise on trawling inside the 6-mile limit. He said it was up to Parliament to evaluate the conflict of interest involved in the proposal that only trawlers of less than 300 tons be permitted to fish between 4 and 6 miles.

The proposal is endorsed by Norges Fiskarlag--the national association of fishermen. But, according to A/S Findus, the ban on larger trawlers would force a sharp cut in operations of the firm's big filleting and freezing plant at Hammerfest, now in the midst of a major expansion.

The fleet of 11 large trawlers supplying raw material for the Findus plant, it is asserted, get most of their catch inside of the 6-mile limit. The company's Director has warned that unless Findus trawlers are ex-

Norway (Contd.):

empted from the proposed ban on trawlers of more than 300 tons, the plant would have to curtail operations radically.

The Government bill calls for a 2-stage extension of the fishery zone off the Norwegian coast and Jan Mayen. On April 1, 1961, the limit would be extended from 4 to 6 miles, and on September 1, 1961, from 6 to 12 miles, subject to Parliament approval (News of Norway, March 9, 1961.)

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PROSPECTS FOR 1961 WINTER HERRING FISHING SEASON:

Norway's 1961 winter herring season is expected to yield the smallest catch since 1934 and may be the fourth successive year that the catch has been extremely small.

Winter herring furnish the raw materials for a large share of the fish-body oil and fish meal produced by Norway.

The 1961 catch is expected to be about 200,000 short tons--one-third below the poor catch of 1960 and the smallest since the near-failure in 1934. Unfavorable weather and difficulty in locating shoals of herring account for the expected small catch. In the mid-1950's, several winter herring catches exceeded one million tons.

A catch of 200,000 tons will supply but little raw material to byproducts processors. From 1955 through 1959 an average of 235,000 tons was used annually for purposes other than for oil and meal. Most of this tonnage was used for export as fresh herring and for home consumption after being salted and canned.

Disposition of Winter Herring in Norway from 1954 Through 1960

Year	Total Catch	Processed for Oil and Meal	Used for Other Purposes
	(1,000 Short Tons)		
1960 (est.)	330	155	175
1959	459	239	220
1958	381	196	185
1957	877	645	232
1956	1,263	1,006	257
1955	1,064	791	273
1954	1,204	974	230

Oil yield from the winter herring catch is normally around 10 percent, with fish caught early in the season usually having a higher oil content than end-of-the-season catches.

Norwegian fisheries experts believe that the shoals of winter herring spawning off the Norwegian coast are small from natural causes rather than excessive fishing. The experts also predict a continuation of the small stocks for 1 or 2 more seasons.

In 1956, Norway produced almost 25 percent of the 565,000-ton world output of fish oil. However, in 1960, because of the small winter herring catch, Norway's share of the 490,000-ton world production dropped to less than 10 percent. In 1950-54, Norway's share averaged 22 percent of world production and 17 percent in 1955-59. (Foreign Crops and Markets, March 13, 1961.)

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WINTER HERRING CATCH WORST SINCE 1934:

Norway's important winter herring fishery, so-called because it centers on high-priced fat herring, was called off at midnight February 28, 1961. The result was the worst since 1934. Part of the loss may be recuperated during the spring herring season, which started March 1. But with prices reduced because of the lower fat content, prospects for a substantial improvement are very slim. Besides, the herring had already begun to leave their spawning grounds off West Norway.

According to reports from Aalesund, main port for the herring fleet, only about 42,000 metric tons of fat herring, with a first-hand value of less than Kr. 15 million (US$2.1 million), had been landed at the end of the winter herring season. Last year, when the season was one week longer, the fat herring catch totaled some 225,000 tons, worth about Kr. 70 million (US$9.4 million) ex-vessel. This year, the season had barely started when the drop in fat content forced the Cooperative Herring Sales Association to switch to the lower spring herring price.

The 1961 winter herring catch, smallest in 27 years, means a raw material loss of some Kr. 250 million (US$35 million) compared with 1957, which was the last good season. And, according to experts, the failure will reduce Norway's gross national product by approximately Kr. 500 million (US$70 million).

The failure did not come as a surprise. For the past three years there have been signs that the herring stock was petering out. Both fishing vessel operators and the fish-processing industry, therefore, have been girding for the worst.

On-the-spot reports from Aalesund say that, in contrast to customary practice, owner-operators of herring vessels have not gone deep into debt prior to the start of the fishery season. This year their loans have been cautiously kept within manageable proportions. Thus, few are expected to run into financial difficulties because of the total fishery failure. Equipment firms, too, would

Norway (Contd.):

seem able to weather the storm. Worst off is the herring oil and meal industry, which so far has received only some 7,000 tons for processing, as against 700,000 tons at the same time three years ago. Such a radical drop in the supply of raw material may prove disastrous for some firms.

However, according to the Director of the enterprising Aalesund Project Council, the fishery failure is not catastrophic for that port or the Sunnmore district in general, though individual fishermen and processing plants will undoubtedly be hard hit. In recent years, the economy has been greatly strengthened by the growth of new industry. On the whole, therefore, the district is now well able to bear the sizable income loss caused by the poor herring fishery.

Another important factor is that the herring supplied to processing plants is being utilized far better than even a few years ago. Pound for pound, the herring yield a much better profit than formerly. Moreover, the same quantity of landed herring provides more jobs at processing plants than in former years. (News of Norway, March 9, 1961.)

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HERRING MEAL AND OIL SUPPLIES LOW:

Due to the low Norwegian herring catch this season (about 41,850 metric tons), deliveries of raw material to the reduction plants were negligible this year. The production of herring oil and meal is therefore substantially reduced. The supply of raw material for the marine-oil hardening industry will therefore also be reduced and larger imports will be needed.

A Norwegian trade representative stated that Norway has purchased 7,500 metric tons of menhaden oil from the United States so far this year and further purchases are expected during the coming months. Also the supply of herring meal will be substantially reduced with the result that the demand by Norway for other protein concentrates, such as soybean products, will increase. (United States Embassy, Copenhagen, March 13, 1961.)

Peru

EXPORT PRICES FOR FISH MEAL, FEBRUARY 1961:

The Peruvian National Fisheries Society (the trade organization for the fisheries industry) reported that export prices for fish meal (65-67 percent protein) during February 1961 were US$72.00-75.00 a metric ton (US$65.32-68.04 a short ton), an increase of about 2.8 percent over the January 1961 average of $64.86 a short ton. (United States Embassy in Lima, March 13, 1961.)

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FISHERIES TRENDS 1960:

The major development in the Peruvian fishing industry during the fourth quarter of 1960 was the strenuous effort of fish meal producers to work out a solution of the problems faced by the industry during the year--overproduction, falling prices, and threatened restrictions against Peruvian fish meal in foreign markets. This effort showed marked promise of success at the end of the quarter. An export quota system, evolved at a meeting in Paris (October 1960) of fish meal producers from a number of countries, and given the force of law for Peruvian fish meal exporters by a decree of December 20, 1960, limited Peru's exports of fish meal during 1961 to 600,000 metric tons. From January 1 this year, the prior approval by the National Fisheries Society was required for the issuance of export licenses by the Ministry of Agriculture. The formula used in assigning quotas to individual producers was not made public, but it is understood that provision is made for deducting from quotas for shipments in subsequent quarters made on futures contracts which may be in excess of assigned amounts. Peru's actual fish-meal production capacity is considered to be only slightly above 500,000 tons, despite higher estimates. Therefore, the 600,000-ton quota may have little meaning beyond the stabilizing influence of a known, rather than an unknown, limit on exports.

As a complementary measure, Peruvian fish-meal producers undertook to organize a marketing organization (Consorcio Pesquero del Peru, S. A.), through which all member-producers are to export. According to the regulations of the organization, between 90 and 95 percent of Peru's production had to be represented in the membership before the consortium could become operative. It became a functioning organization February 15, 1961, with slightly over 90 percent of Peru's exportable fish-meal production represented in the membership.

Exports of fish meal are high among Peru's leading exports. In latest data showing commodity exports, for the first nine months of 1960, fish meal ranked third, after copper and cotton. For the full year 1960, the value of fish-meal exports stood at 1,056.4 million soles (US$38.7 million).

Table 1 - Exports of Fish Meal from Peru, 1958-1960

Year	Quantity	Value	
	Metric Tons	Million Soles	Million US$
1960	507,042	1,056.4	38.7
1959	277,600	860.5	31.3
1958	105,777	271.1	11.8

Exports of other fishery products during the first nine months of 1960 were lower. There was a 50-percent drop in the quantity and a 52-percent drop in the value of frozen tuna exports, and slight reductions in canned bonito and tuna

Peru (Contd.):

Table 2 - Peruvian Exports of Fishery Products, January-September 1959 and 1960

Product	Jan.-Sept. 1960			Jan.-Sept. 1959		
	Qty.	Value1/		Qty.	Value1/	
	Metric Tons	Million Soles	US$ 1,000	Metric Tons	Million Soles	US$ 1,000
Frozen Fish:						
Tuna	5,941	18.0	658	11,929	37.7	1,378
Skipjack	6,925	19.1	699	4,729	14.8	541
Swordfish	126	1.6	59	102	1.2	44
Shrimp ("Langostinos")	97	2.4	88	51	1.2	44
Total frozen fish	13,089	41.1	1,504	16,811	54.9	2,007
Canned Fish:						
Bonito	10,777	107.2	3,921	12,859	136.8	5,000
Tuna	360	3.5	128	568	4.5	164
Total canned fish	11,137	110.7	4,049	13,427	141.3	5,164
Fish Byproducts:						
Fish meal	383,600	850.2	31,097	184,090	583.9	21,341
Fish oil	23,728	67.9	2,484	13,814	36.3	1,327
Sperm oil	9,489	32.5	1,189	7,904	26.3	961
Whale meal	1,513	2.6	95	2,525	7.8	285
Total byproducts	418,330	953.2	34,865	208,333	654.3	23,914
Grand Total	442,556	1,105.0	40,418	238,571	850.5	31,085

1/F.o.b. values converted at rate of 27.36 soles equal US$1 for first nine months of 1959 and 27.34 soles equal US$1 for first nine months of 1960.
Source: Statistical Department, Callao Customhouse.

Table 3 - Average f.o.b. Prices1/ for Peruvian Fish Meal Exports by Quarters, 1959 and 1960

	1960		1959	
	Metric Ton	Short Ton	Metric Ton	Short Ton
	(US$)			
1st Qtr.	83.00	75.30	146.00	132.45
2nd. Qtr.	73.33	66.52	128.33	116.42
3rd. Qtr.	81.67	74.09	95.00	86.18
4th Qtr.	76.33	69.25	90.68	82.26
Average	78.58	71.29	115.00	104.33

1/Prices for fish meal with minimum content of 65 percent protein for future delivery.
Source: Fish Meal Producers Association.

exports. It is in the byproducts sector, including fish meal and fish oil, where unusual increases occurred. In the first nine months of 1960 as compared with 1959, those exports increased 46 percent in value, from 654.3 million soles ($23.9 million) to 953.2 million soles ($34.9 million). (United States Embassy in Lima, March 1, 1961.)

Philippine Republic

U. S. CANNED SARDINES PREFERRED:

Two Philippine trade sources have indicated that the National Marketing Corporation (NAMARCO) is very likely to give preference to United States canned sardines in its next award for this product. The time for the next sardine tender has not yet been announced, but both businessmen expected it to be some time in March.

In the past each of the two firms has represented Japanese sardine suppliers, but according to their sources at NAMARCO, the Government agency is so dissatisfied with Japanese sardines that it will give preference to United States brands that are popular with Philippine consumers.

NAMARCO's policy may create an opening for United States exporters that have not yet entered the Philippine market. (United States Embassy, Manila, February 18, 1961.)

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DECONTROL HAS LIMITED IMPACT ON CANNED SARDINE IMPORTS FROM U. S.:

An initial assessment of the effect of the Philippine decontrol program on trade with the United States, based on a comparison of the trade in May through November 1960 with that of the same period of 1959, shows that so far the impact has been limited.

Most of the severe declines in imports from the United States that have occurred since the decontrol program was instituted can be explained by factors other than decontrol, which in April 1960 relegated about 25 percent of imports to the more expensive free market and in November an additional 25 percent. These factors include foreign competition, increased domestic production, and stringent regulations imposed by the National Marketing Corporation (NAMARCO) on its suppliers.

Among the categories of goods imported from the United States that declined most in the first 7 months of decontrol (November 1960 is the latest month for which statistics are available) were fish products.

Imports of United States fish products in May through November 1960 amounted to slightly over $1 million, compared with over $3 million in the like period of 1959. This drop occurred despite retention of sardines in the highest-priority and preferred-rate category of "decontrolled items" and can be attributed primarily to lack of stocks in the United States and the restrictive import polices of NAMARCO, which in April 1960 initiated much more stringent marking and labeling requirements for the items it imports. This Government organization is by far the largest importer of fish products. But only the drop in imports of squid, changed from "unclassified items" to "nonessential consumer goods," can be attributed to the decontrol program.

The decontrol program, however, is moving rapidly from the time when most goods

Philippine (Contd.):

were imported at the official 2-to-1 rate to a period in which the largest proportion of imports will be at the free-market rate. The most recent changes, which occurred last November, provided that importers of "essential producer goods," "essential consumer goods," and special "unclassified items," previously permitted importation at the preferred rate, must import such items half at the free-market rate and half at the official rate. Inasmuch as the selling rate to exporters has gone up from 2.30 pesos to 2.50 pesos to the dollar while the free-market rate has declined from 3.2 to 3 pesos to the dollar from 4 to 3.6 pesos, including the margin, a unified rate providing for a minimum distortion of existing patterns of trade may soon emerge. (Foreign Commerce Weekly, March 6, 1961.)

Poland

FISHING FLEET AND SEA FISHERIES INCREASED SHARPLY, 1949-59:

Between 1949 and 1959 the Polish fishing fleet doubled and the landings from sea fisheries rose by 146 percent. The increase in the number of large ocean-going trawlers increased from zero in 1949 to 39 vessels in 1959, and the smaller inshore craft (cutters) jumped from 279 vessels in 1949 to 502 vessels in 1959. The sharp rise in the landings was due to increases in the landings of herring or herring-like fish. Apparently the super-trawlers have concentrated on the herring fishery as the landings of this species jumped sixfold from 1949 to 1959. The increase in the landings of sprat or sardines was even more pronounced. Landings of species other than herring and sprat were about the same in 1959 as in 1949.

Table 1 - Polish Fishing Craft 1/, 1949, 1955, and 1958-59

Fishing Craft	1959	1958	1955	1949
Gross registered tons	58,000	55,100	34,300	15,250
	(Number)			
Supertrawlers	39	30	8	-
Trawlers	15	17	20	20
Luggers and trawlers	50	52	34	-
Luggers	3	3	3	3
Cutters	502	476	397	279
Total	609	578	462	302

1/Source: Concise Statistical Yearbook of the Polish People's Republic, 1960.

Table 2 - Polish Landings of Fishery Products, 1949, 1955, and 1958-59

Product	1959	1958	1955	1949
	(Metric Tons)			
Codling	36,700	38,400	40,300	36,900
Herring	84,300	70,600	52,000	12,000
Sprats	15,300	11,300	5,100	1,100
Other	9,600	6,400	9,700	9,300
Total	145,900	126,700	107,100	59,300

Portugal

CANNED FISH EXPORTS, JANUARY-DECEMBER 1959-1960:

Portugal's exports of canned fish declined from 76,985 metric tons or 4.2 million cases in 1959 to 65,137 tons or 3.6 million cases in 1960. The amount of each product exported was less in 1960 (see table). West Germany remained the principal buyer of Portugal's canned fish exports in 1960 with 14,631 tons, followed by Great Britain with 8,139 tons, the United States with 6,890 tons, and Italy with 6,417 tons. Exports for those countries in 1959 were: West Germany 16,899 tons, Italy 10,199 tons, Great Britain 7,688 tons, and the United States 7,340 tons. (Conservas de Peixe, February 1960 and 1961.)

Portuguese Canned Fish Exports, January-December 1959-1960

Product	January-December			
	1960		1959	
	Metric Tons	1,000 Cases	Metric Tons	1,000 Cases
In Oil or Sauce:				
Sardines	54,790	2,883	60,760	3,152
Chinchards	1,731	91	1/	1/
Mackerel	503	20	3,236	129
Tuna and tunalike	3,432	123	4,006	141
Anchovy fillets	4,284	428	6,359	635
Others	397	20	2,624	137
Total	65,137	3,565	76,985	4,194

1/1959 data for chinchards probably included with "others."

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CANNED FISH PACK, JANUARY-DECEMBER 1959-1960:

The Portuguese pack of canned fish in oil or sauce increased from 62,459 metric tons or 3.5 million cases in 1959 to 70,204 tons or 3.8 million cases in 1960. Sardines again accounted for the bulk of the pack in 1960 with 82.5 percent as against 80.5 percent in 1959; however, tuna and tuna-like fish replaced anchovy fillets as Portugal's second leading canned fish in 1960 (see table).

Matosinhos remained Portugal's leading sardine port in 1960, accounting for 63.1 per-

Portugal (Contd.):

cent of total sardine landings as against 71.3 percent in 1959.

Portuguese Canned Fish Pack, January-December 1959-1960

Product	January-December			
	1960		1959	
	Metric Tons	1,000 Cases	Metric Tons	1,000 Cases
In Oil or Sauce:				
Sardines	57,929	3,054	50,290	2,646
Chinchards	1,879	99	1/	1/
Mackerel	492	19	583	23
Tuna and tunalike	5,335	191	4,495	161
Anchovy fillets	3,919	392	5,624	562
Others	650	34	1,467	78
Total	70,204	3,789	62,459	3,470

1/1959 data for chinchards probably included with "others."

Tuna landings for January through October 1960 amounted to 1,912 tons and bonito 112 tons as compared with 1,310 tons and 288 tons, respectively, for the same period in 1959. (Conservas de Peixe, February 1960, January and February 1961.)

Senegal

TUNA FISHING TRENDS, LATE 1960:

Two major events highlighted the tuna fishing industry in Senegal, West Africa, during the last quarter of 1960, one being the start of the 1960/61 fishing season and the other being a continued and growing interest on the part of United States firms in commercial aspects of the tuna fishery.

The 1960/61 season started officially on November 15, 1960, with a total of 57 clippers (24 from France) and 16 freezerships taking part. Preparations for the new season had centered around the hope that Senegal could combat the excessively high costs of the local industry and thereby enter world markets. However, lack of cooperation on the part of the fishermen, who raised prices to 40 percent above world market levels, vitiated these hopes and any export outside the franc zone area will be attributable only to the fact that the Senegalese Government is forcing local canners to sell 3,500 metric tons of canned tuna at world prices if they wish to sell to France the 10,000 tons France has agreed to purchase at the artificially-high prices. In addition, 5,000 tons of frozen tuna outside the agreement will be purchased by France, and 6,000 tons by United States firms. The fishermen's attitude has caused Senegal to start looking for fishermen other than the French to catch and land the fish, though up to February 14, 1961, no agreement was reached with anyone.

United States interest in the Senegal tuna industry has been emphasized by visits of representatives of United States tuna canneries.

A meeting of fishery scientists took place in Dakar from December 12 to 17, 1960. It studied various aspects of tuna life-history, as well as encouraged increased research on tuna in African waters. It encouraged the establishment of an international regulatory commission to prevent overfishing. (United States Embassy, Dakar, February 14, 1961.)

South-West Africa

FISHING VESSELS AND GEAR, JUNE 1960:

As of June 1960, the South-West African fishing fleet consisted of 111 vessels, over half of which were engaged in the pilchard-maasbanker (jack mackerel) fishery. Most of the balance fished for spiny lobsters.

South-West Africa's Motor Fishing Vessels and Gear as of June 1960

Fishing Gear Used by Vessel	No. of Vessels
Lampara purse net (Power Winch)	67
Lampara purse net and spiny lobster nets (Power Winch)	2
Spiny lobster nets (Power Winch)	31
Spiny lobster nets	6
Hand lines	2
Lines and nets	3
Total	111

Notes: (1) All vessels are Diesel-powered with hp. ratings from 44 to 230.
(2) Vessel sizes range from 43 to 69½ feet; most of the vessels are between 50 and 60 feet.
(3) All lampara purse-net (pilchard) vessels are harbored at Walvis Bay; 19 of the spiny lobster vessels are stationed at Cape Town (some 400 sea miles from Luderitz); the remainder at Luderitz.

There are no otter trawlers registered in South-West Africa. (The South African Fishing Industry Handbook and Buyers' Guide, 1960/61.)

Spain

SHRIMP INDUSTRY:

The Spanish shrimp industry is concentrated in southern Spain in the provinces of Huelva, Cadiz, and Malaga. Shrimp operations are carried on throughout the year.

Spain (Contd.):

On December 31, 1959, there were 784 fish-processing plants in Spain. These plants usually process a variety of species rather than one type, such as shrimp. At present there are insufficient freezing facilities for developing a large frozen fish industry to supply local supermarkets, and for regulating the supply of fresh fish to the markets and to the canning industry. Freezing plants in the South Atlantic region are located in Cadiz, Malaga, and Huelva with a total freezing capacity of 25, 10, and 2 tons of fish per day, respectively. The National Investment Institute has had a plan for several years for the development of cold-storage and freezing facilities in every major port in Spain. Under the plans of the National Freezing Network, plants can be installed directly by National Institute of Industry (INI) or by private companies, but with location and capacity subject always to INI approval.

In 1959 there were 505 canning plants located along the Spanish coast for handling all kinds of fish. Out of the total, 70 have a processing capacity of up to 200 metric tons yearly; 249, up to 600; 148, up to 1,300; 23, up to 2,000, and 15 for over 2,000 tons. Some 65 of the total are located in the provinces of Huelva, Cadiz, and Malaga, and most of them have a medium operating capacity.

The major part of the Spanish-canning industry is made up of a large number of small, antiquated units. These units must be renovated for the industry to meet foreign competition in the domestic market.

Statistics on shrimp landings are not broken down by the size of shrimp caught. Landings of heads-on shrimp amounted to about 13,900 metric tons in 1959, which represented about 65 percent of the total landings of crustaceans (estimated by the Fish Syndicate at 20,400 tons in 1959). Approximately 11,000 of the 13,900 tons were caught in the areas of Huelva and Cadiz.

Shrimp are caught in trawling operations. The only available data on the number of vessels devoted to the shrimp fishery is for the province of Huelva. The Directorate General of Fishing reports that there are approximately 204 motor boats of different tonnage in that area. The largest vessel (142 tons and 400 hp.) belongs to the port of Huelva. The remainder average four tons with a power capacity of some 20 hp. Sail boats and row boats are also used in shrimp catching. Vessels often are owned by local fishermen who carry on private operations.

Table 1 - Spanish Landings of Shrimp and Spiny Lobster, 1956-59

Year	Shrimp (Heads-on)	Langostinos (Heads-on Large Shrimp and Spiny Lobsters)
	(Metric Tons)	
1959	13,902	322
1958	11,905	366
1957	14,321	298
1956	13,804	398

Due to the multiple exchange rates, export prices of shrimp and spiny lobsters prior to June 1959 are difficult to determine. According to official sources in Cadiz, prices of frozen shrimp in 1960 for export to the United States average about 83 U. S. cents a pound for first-grade shrimp and 53 U. S. cents a pound for second-grade shrimp at official rate of 60 pesetas to US$1.

Table 2 - Spanish (Cadiz Area) Exports 1/ of Frozen Spiny Lobsters and Shrimp, 1956-59 and January-June 1960

Year	Country of Destination	Quantity
		1,000 Lbs.
1960 (January-June)	United States	79.0
1959	United States	142.6
1958	United States	25.6
	Great Britain	8.6
1957	United States	181.3
	Denmark	30.4
1956	United States	155.4
	Germany	100.0
	Sweden	95.9
	Great Britain	3.3
	Denmark	2.2

1/ 1956-59 data are for frozen lobsters; data for 1960 are for shrimp. In 1960 the lobster catch was small and frozen Moorish shrimp (similar to crayfish, very large and red) were substituted for export.

Official sources in Huelva report that the major species exported to the United States were frozen shrimp (Moorish) and frozen spiny lobster tails. The average quantity of frozen shrimp and spiny lobster tails exported to the United States was about 136 metric tons a year; the average amount of boiled and frozen shrimp exported to France was about 200 metric tons per year.

No export taxes are levied on shrimp because of the Government's interest in expanding exports. As is true for all products, however, export licenses must be obtained from the Ministry of Commerce. The fish industry continues to benefit from the 1959 decree which increased taxes on petroleum products, but specifically excluded petroleum products sold to fishing vessels.

The national labor regulations for the fish-canning industry which were approved by the Ministerial Order of October 13, 1958, fixed

Spain (Contd.):

wage rates for personnel working in those industries. The monthly wages for technicians fluctuate between about 1,500 pesetas and 3,300 pesetas (US$25.00-55.00). Administrative positions are rated between 1,000 and 2,500 pesetas ($16.67-41.67) per month. For common laborers the hourly rate fluctuates between 15 and 46 pesetas (25 to 76.7 U. S. cents). The employee's real income is at least 40-45 percent higher than his basic salary because of the payments for overtime, premiums, and bonuses.

Salaries for fishermen are fixed by the national labor regulations for the fishing industry dated October 26, 1956. Rates depend on the type of fishing and on the duties of the laborer on the vessel. Premiums given on the total amount of the catch must be added to the basic salary. Fishermen engaged in the shrimp fishery are usually self-employed and their income is derived from the sale of their catches. (United States Embassy, Madrid, March 1, 1961.)

Tunisia

EXPORTS OF SELECTED FISHERY PRODUCTS TO UNITED STATES, 1956-60:

Tunisia's exports of products usually associated with fisheries to the United States between 1956 and 1960 were confined largely to cuttlefish bone and land snails, plus small quantities of marine shells and dried octopus. (United States Embassy, Tunis, February 20, 1961.)

Tunisian Exports of Selected Fishery Products to the United States, 1956-60

Products	Quantity					Value				
	1960	1959	1958	1957	1956	1960	1959	1958	1957	1956
	(Metric Tons)					(US$)				
Sponges	-	-	-	-	-	-	-	-	-	2,328
Cuttlefish bone	27	20	25	24	45	7,092	7,160	9,325	6,738	18,529
Snails[1]	23	24	37	34	54	7,576	7,523	9,215	5,616	7,233
Octopus, dried	-	-	-	1	-	-	-	-	476	-
Sea shells	-	-	-	4	7	-	-	-	1,518	1,384

1/Land snails.

Turkey

TUNA AND BONITO EXPORTS HIGHER IN 1960:

Exports of bonito and tuna caught by the Istanbul fishing fleet in 1960 were officially estimated at 6,800 metric tons valued at TL 10,725,000 (US$1.2 million), an increase of 160 percent in quantity and 200 percent in value over 1959. Prices (f.o.b.) were up an average of 20 percent. The increased catch came as a surprise to local experts who expected that bonito and tuna, which make up the large majority of Turkish fish exports, were running "off cycle." The fall run, which is normally heavier than the spring run, was so productive that fishermen halted operations on several occasions because cold-storage facilities were unavailable and local prices were falling rapidly. Prices on the local market varied at times up and down as much as 50 percent from the seasonal average. Exporters enjoyed a substantial premium. Principal markets were canneries in Italy and Yugoslavia.

The fishery cooperative movement gained new ground during the year as organizations were able to export on their own account for the first time.

Trade sources now predict another successful year in 1961 when the bonito run is expected to continue, the United States Consulate in Istanbul reported on February 23, 1961.

Union of South Africa

FISHING VESSELS AND GEAR, JUNE 1960:

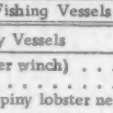
As of 1960, South Africa's powered fishing fleet consisted of 549 vessels using purse nets, spiny lobster nets, and lines, plus 62 otter trawlers. The fishing fleet other than otter trawlers was made up of the following: 153 vessels, 30-40 feet long; 165 vessels, 41-50 feet long; 146 vessels, 51-60 feet long; 82 vessels, 61-70 feet long; and 3 vessels over 70 feet in length. The steam-powered otter trawlers ranged in length from 86.5 to 176 feet and the Diesel-powered trawlers from 50 to 129 feet in length. Vessels other than otter

Union of South Africa (Contd.):

South Africa's Motor Fishing Vessels and Gear as of June 1960

Fishing Gear Used by Vessels	No. of Vessels
Lampara purse net (power winch)	172
Lampara purse net	6
Lampara purse net and spiny lobster nets (power winch)	6
Lampara purse net and spiny lobster nets	6
Hand lines	95
Hand lines (power winch)	6
Lines and nets	67
Lines and nets (power winch)	22
Spiny lobster nets	42
Spiny lobster nets (power winch)	24
Spiny lobster nets and hand lines	74
Spiny lobster nets and hand lines (power winch)	29
Otter trawlers (steam power)	26
Otter trawlers (Diesel power)	36
Total	611

trawlers are practically all Diesel-powered. (The South African Fishing Industry Handbook and Buyers' Guide, 1960/61.)



U.S.S.R.

FISHING INDUSTRY EXPANDING:

In 1960 a total Russian fishery catch of over 3 million metric tons (6.6 billion pounds) was reported from operations in waters stretching from Kamchatka to Newfoundland and from Greenland to Takoradi. It seems probable that the seven-year-plan goal of 4,626,000 tons in 1965 will be reached, according to a report in Fiskets Gang, (January 26, 1961), a Norwegian fishery periodical.

The constant increase in the Russian catches is due to centralized planning and leadership, the use of large fleets, stern trawlers, and large coventional ocean trawlers combined with individual exploratory fishing vessels, and the exploitation of new fishing grounds. For example, stern trawlers now sail from Kherson on the Black Sea and Kalingrad on the Baltic Sea to the West African coast for sardines.

Fleet expansion and modernization have moved ahead rapidly. Numerous 230-foot stern trawlers have been built in Poland, Russia, and East Germany. Sixty of these are slated for tropical fishing for tuna and sardines, and will be delivered by East Germany in the period from 1961 to 1965. Conventional 540-hp, 140-foot fishing trawlers will be repowered with 600-800 hp. engines to increase their speed and all trawlers will be equipped with refrigerated holds. At the same time the coal-fired trawlers will be converted to oil to increase the operating range, and old coastal trawlers will be scrapped and replaced by a smaller number of vessels equipped with Danish seines. Crews from the coastal vessels will be transferred to the North Atlantic ocean trawlers.

The present methods are being changed gradually, and the tendency is toward complete processing aboard the vessel. Processing and cargo space has been increased in the large trawlers, and their capacity for processing products now is double that of a normal or average trip. The first full load on a trip is delivered to a transport vessel while the second is carried directly home.

The older cargo-freezing vessels which were converted to motherships have been found to be ineffective, unsatisfactory, and to have too little refrigerating capacity. Seven of these are being completely re-equipped and mechanized, but only one new vessel--Severdovinsk--has been built.

The herring fisheries are becoming more and more important. Before long all of the coventional 140-foot vessels will fish herring exclusively, using gill nets and midwater trawls. The herring will be frozen and delivered directly to the home ports. The midwater trawl appears to have been perfected for the stern trawlers, and new materials, such as plastics, make it possible for the stern trawlers to fish to a depth of 500 fathoms. A new trawl, designed for rough bottom, is under development and, likewise, steerable otter boards. New hydroacoustic equipment is being installed in all ocean-fishing craft.

Russian consumers have become more particular, and in the attempts to satisfy them, the Fishery Ministry has discovered that it is more profitable to deliver good-quality and well-prepared fishery products in an appealing form. One result is that the volume of fish fillets in the stores in 1960 was five times that in 1958.

In order to meet the increased supply and increased demand, the processing plants in Murmansk have been greatly expanded and a number of refrigerated railroad cars have been placed at their disposal for the distribution of fish over the whole of European Russia.

In all, the Russian fishing industry presents a healthy picture.

* * * * *

FLOATING DRYDOCK FOR FISHING VESSELS EN ROUTE TO PACIFIC COAST:

A report from Halsingborg, Sweden, states that on February 19, 1961, a large Soviet tugboat passed through Oresund towing a giant floating dock. The dock, it is said, was built in Lithuania. It is being towed to the Soviet Pacific Ocean coast via the North Sea, English Channel, around Africa and through the Indian Ocean. The journey, it is estimated, will take about three and one-half months. The floating dock, according to reports, will be stationed in "Port Pripiski" where it will serve as a repair shop for Soviet fishing boats and trawlers. (United States Consulate in Goteborg, February 20, 1961.)

* * * * *

NEW HERRING FACTORYSHIP FOR FAR EAST:

The newly-constructed vessel Sovjetskij Sakhalin has arrived at Nevelsk in South Sakhalin, U. S. S. R., according to the Russian periodical Vodny J. Transport for February 7, 1961 (as reported in February 23 Fiskets Gang, a Norwegian fishery periodical). The vessel was built in a Polish shipyard for the U. S. S. R. as a mothership and factoryship for the herring fleet in the Far East. The vessel displaces 17,000 tons.

* * * * *

U. S. S. R. (Contd.):

PACIFIC SALMON PROBLEMS SUBJECT OF CONFERENCE:

It was reported from Petropavlovsk-Kamchatskiy, U. S. S. R., that Soviet scientists and fish industry specialists late in 1960 participated in a conference on problems of the salmon economy of the Far East. The conference discussed results of many years' research on the condition of fish reserves, improvement of artificial reproduction, and improvement of conservation and regulation of salmon fisheries in the northwestern part of the Pacific Ocean. The reports and speeches noted that in recent times, despite the measures adopted by Soviet organizations for improvement of reproduction of Far Eastern salmon, in an overwhelming majority of fishing regions of the Far East a rapid fall in the commercial catch has been observed. This is accompanied not only by destructively subnormal replenishment of basic species, but also a destructively low level of fish reproduction.

To prevent a further drop in salmon reserves, industry workers took steps to reduce the intensity of fishing, closed several fish combines, canning plants, and considerably reduced the size of the fishing equipment.

But all these steps have not given and will not give the proper results, since the basic reason for the sharp reduction in Far Eastern salmon is the extraordinarily intensive, irrational fishing conducted by the Japanese fishing industry in the northwestern part of the Pacific Ocean, and primarily in the southern region of the sea breeding grounds. Several at the conference spoke on this subject in particular.

The conference noted the positive role of the Soviet-Japanese Fishing Convention, which has somewhat adjusted the salmon catch in the open sea. But at the same time, it was deemed necessary to take further active steps to regulate fishing conducted by the Japanese fishing industry, in order to prevent possible destruction of the fishing value of Far Eastern salmon.

Decisions and recommendations were made on further development of scientific research, improvement of fishing regulations, and strengthening of artificial reproduction of salmon. The reserves of Far Eastern salmon, a national resource of the Soviet Union, must not only be restored, but increased, according to the conference. (United States Embassy, Sapporo, Japan, March 8, 1961.)

United Kingdom

FISHERY LOANS INTEREST RATES REVISED:

The British White Fish Authority in February 1961 announced that, as a result of changes in the rates of interest charged to them by H. M. Treasury, their own rates of interest on loans made as from February 20 will be as follows:

Fishing vessels of not more than 140 feet, new engines, nets, and gear:

On loans for not more than five years--$5\frac{3}{4}$ percent; decrease $\frac{1}{4}$ percent.

On loans for more than five years but not more than 10 years--$6\frac{1}{4}$ percent; increase $\frac{1}{4}$ percent.

On loans for more than 10 years but not more than 15 years--$6\frac{5}{8}$ percent; decrease $\frac{1}{8}$ percent.

On loans for more than 15 years--$6\frac{3}{4}$ percent; no change.

Processing plants:

On loans for not more than 20 years--7 percent; no change.

The rates on loans made before February 20, 1961, are unchanged. (Fish Trades Gazette, February 25, 1961.)

Note: See Commercial Fisheries Review, January 1961 p. 84.

* * * * *

FISH MEAL PRICES, MARCH 1961:

Fish meal prices reported by a British trade periodical between November 19, 1960, and March 4, 1961 (see table p. 66).

As of March 4, 1961, imported fish meal prices were up from 2.2-9.7 percent as compared with February 4, 1961. Domestic fish meal prices on March 4, 1961, were down about 5.3 percent for white fish meal and unchanged for herring meal from a month

United Kingdom (Contd.):

Type of Fish Meal	Protein Content	Date Quoted	£/s./d. per Long Ton	US$ Long Ton	US$ Short Ton
Imported:					
S. Africa (white fish)	65	11/19/60	48/15/0	136.50	121.87
Peru (branded)	65	3/4/61	39-40/0/0	109.20-112.00	97.50-100.00
Peru (avg. quality)	65	3/4/61	37/0/0	103.60	92.00
Iceland (white cod)	70-73	11/26/60	42/0/0-48/16/0	117.60-136.64	105.00-122.00
Iceland (herring)	70	3/4/61	46/7/6	129.85	115.94
Denmark (herring)	73	3/4/61	49/5/6	137.97	123.19
Domestic:					
White fish	66	3/4/61	1/53/10/0	149.80	133.75
Herring 2/	68-71	3/4/61	50/0/0	140.00	125.00

1/ In bags, ex-factory Hull or Grimsby.
2/ In bags, ex-factory.
Note: Imported fish-meal prices are c.i.f. current shipments, and domestic-meal prices (net cash) are ex-plant, in 6 long-ton lots and bagged, unless otherwise reported.

earlier. (United States Embassy, London, March 17, 1961.)

* * * * *

SUPERTRAWLER LAUNCHED IN GERMANY: The largest and most revolutionary trawler ever built for the British fishing fleet was launched on January 14, 1961, in Bremerhaven, Germany. Named the Lord Nelson, the trawler cost £400,000 (US$1,122,000). Besides being Britain's largest and first distant-water freezing stern-trawler (as distinguished from the Fairtry-type factory-trawlers which also fish from the stern).

Specifications are as follows; tonnage, 1,200; over-all length, 238 ft. 10 in. (30 feet longer than the largest existing conventional British trawler); breadth, 36 ft.; depth (from 2nd deck), 15 ft. 9 in., and draught, 14 ft. 4 in. Her variable-pitch propeller is stainless steel and controlled from the bridge. Fittings and auxiliary equipment will be supplied by the British, such as radio, radar, radio-telephone, and fish-finding aids. The all-welded vessel has baths, showers, cabins, and a modern sick bay. It is expected to join the fleet out of Hull, England, by May 1961, and will stay out longer than the present 21 days for distant-water vessels. Her turbo-charged six-cylinder engine develops 2,000 hp. at 250 r.p.m., developing a speed of 15 knots. The Lord Nelson has 2 main generators of 105 kilowatts each, one driving the winch and the other for main power supply. These generators are directly driven by the shaft--a first for this type vessel. If the main engine breaks down, the generators can be coupled to haul in the gear and drive the ship at reduced speed. A 40-kilowatt generator in the engineroom can be used for emergency or in-port lighting.

The vessel's trawl net is hauled up a ramp cut into the stern--the fish then slide below decks through a hydraulically-operated hatchway. Below, on the main fish deck (which is under cover), the fish are cleaned, then placed on a conveyor belt which takes them through a washer and into a compartment where they are prepared for freezing. This compartment contains 16 freezing units. Trays of frozen fish are later transferred to an 11,620 cubic-ft. refrigerated hold. An elevator brings the fish to the upper deck level for unloading.

Only part of the catch will be frozen at sea since fish caught near the end of the trip can be stored in an iced fish hold with a capacity of 280,000 pounds. The vessel's instruments will be contained in a console on the bridge--dual controls will enable the skipper to shoot or haul in the trawl net while handling engineroom controls.

High quality is the goal of the owners--"fish frozen immediately as it is taken from the water." (The Fishing News, January 20, 1961.)

Note: Values converted at the rate of 1 British pound equals US$2.805.

FEDERAL ACTIONS

Committee for Reciprocity Information

CONSULTATIONS ON FOREIGN IMPORT RESTRICTIONS SCHEDULED FOR 1961:

The Committee for Reciprocity Information (CRI) on March 1, 1961, issued a notice inviting the public to submit views in connection with consultations scheduled during 1961 under the provisions of Articles XII and XVIII:B of the General Agreement on Tariffs and Trade (GATT). (The notice appeared in the March 2, 1961, Federal Register.) The consultations will be conducted by a panel of 14 countries, including the United States, at meetings scheduled for April and October and will relate to the use of import restrictions for balance-of-payments reasons by the following countries: April: Austria, Burma, Chile, Indonesia, Turkey, Union of South Africa; October: Denmark, Finland, Japan, New Zealand, Norway, Israel.

The consultations will afford the opportunity for the panel to review the economic and financial situation of the consulting countries individually, to explore in this context the possibilities for further relaxation of their import restrictions, and to discuss moderation of particular policies and practices that have proved unduly burdensome to exporters in other countries.

United States traders, business firms, labor organizations, and other individuals or associations which have an interest in exporting to one or more of the consulting countries were asked, as a result of their own experience, to submit information which will be useful to the United States Government during the course of the consultations. Especially sought is a discussion of the possibilities for further relaxation of the level of import restrictions by any of the countries listed and the moderation of particular policies and practices which are burdensome to exporters.

Representations to the Committee in response to this invitation, which should contain all available supporting information, might include views along the following lines:

1. Quantitative import restrictions affecting goods available from the United States have resulted in unnecessary damage to the commercial or economic interest of the United States, its citizens, or organizations;

2. Not even minimum commercial quantities of imports of specific commodities from the United States are permitted, to the impairment of regular channels of trade;

3. Trade is being restrained by complex or arbitrary licensing procedures, or lack of adequate information available to traders regarding import regulations;

4. Reasonable access to a traditional foreign market has not been restored for a particular commodity, even though the country concerned has substantially relaxed its restrictions on imports in general;

5. The long-standing application of import restrictions by a country on a particular product has been accompanied by the growth of uneconomic output of that product within the country; or

6. Discrimination exists in the treatment of goods available from the United States as compared with the treatment afforded similar goods from other countries with convertible currencies.

The CRI is an inter-agency group within the United States Government which receives views of interested persons regarding proposed or existing trade agreements and actions related to such agreements. It is prepared to receive at any time statements from the public regarding import restrictions imposed by any contracting party to the GATT.

Department of Health, Education, and Welfare

FOOD AND DRUG ADMINISTRATION

EFFECTIVE DATE OF REGULATIONS FOR CERTAIN FOOD ADDITIVES EXTENDED:

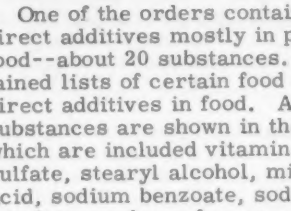
The extension of the effective date of regulations under the Federal Food, Drug, and Cosmetic Act for certain specified food additives was announced by the U. S. Food and Drug Administration in the March 18, 1961, Federal Register in two separate orders.

One of the orders contained a list of indirect additives mostly in packages used for food--about 20 substances. Both orders contained lists of certain food additives used as direct additives in food. A total of about 50 substances are shown in the two lists, among which are included vitamin K_5, sodium alkyl sulfate, stearyl alcohol, mineral oil, benzoic acid, sodium benzoate, sodium nitrite, etc. Limits are shown for some of the substances listed. Both orders became effective March 3, 1961. No specific termination dates have been specified in the two orders.

* * * * *

PROPOSAL TO RETAIN TWO OF THE LABELING REQUIREMENTS PROTESTED IN THE STANDARD OF IDENTITY FOR CANNED TUNA:

It is proposed not to change the definition and standard of identity for canned tuna by rescinding (1) the requirement that the word "dark" be included on the label for tuna darker than Munsell value 5.3 or (2) the requirement that the words "in water" be included in the name of water-pack or in-brine tuna. The findings of fact were published by the U. S. Food and Drug Administration in the March 31, Federal Register as follows:



[21 CFR Part 37]

[Docket No. FDC-64]

CANNED TUNA FISH

Definition and Standard of Identity; Findings of Fact

In the matter of establishing a definition and standard of identity for canned tuna fish:

In the FEDERAL REGISTER of August 28, 1956 (21 F.R. 6402), there was published a notice of a proposal for establishing a definition and standard of identity and a standard of fill of container for canned tuna fish. An order was published in the FEDERAL REGISTER of February 13, 1957 (22 F.R. 892), adopting the proposals, with modifications. Subsequently, objections were filed, and a public hearing was requested on two of the labeling requirements in the identity standard: (1) The requirement that tuna darker than a prescribed level be labeled "dark", and (2) the requirement that for water-pack tuna the name on the label should include the words "in water." By an order published in the FEDERAL REGISTER of August 29, 1957 (22 F.R. 6961), notice was given that no objections had been filed to the fill of container standard or to the compositional requirements of the identity standard, and the effective date for these provisions, as set out in the order of February 13, 1957 (22 F.R. 892), as confirmed. In recognition of the objections to the labeling requirements of the identity standard, these requirements were stayed pending the outcome of the hearing on the issues raised by the objections.

Pursuant to a notice of hearing published in the FEDERAL REGISTER of December 28, 1957 (22 F.R. 10964), a public hearing was held to receive evidence on the issues raised by the objectors. On the basis of the evidence received at the hearing, and pursuant to the authority vested in the Secretary of Health, Education, and Welfare by the provisions of the Federal Food, Drug, and Cosmetic Act (secs. 401, 701(e)(3), 52 Stat. 1046, 1055 as amended 70 Stat. 919; 21 U.S.C. 341, 371(e)(3)) and delegated to the Commissioner of Food and Drugs by the Secretary (25 F.R. 8625), and after consideration of written arguments and suggested findings, which are adopted in part and rejected in part as is apparent from the detailed findings herein made, it is proposed that the following order be issued:

Findings of fact.[1] 1. By an order published in the FEDERAL REGISTER of February 13, 1957 (22 F.R. 892), a definition and standard of identity for canned tuna fish was promulgated. Objections were filed protesting those portions of the order requiring that tuna darker in color than Munsell value 5.3 be declared on the label as "dark tuna" and that the name on the label of canned tuna packed in water rather than in oil include the words "in water" as a part of the name of the food. Notices of the objections, the stay of the labeling requirements, and the announcement of the public hearing on the objections were published in the FEDERAL REGISTER on August 29, 1957 (22 F.R. 6961), and December 28, 1957 (22 F.R. 10964). (Ex. 2, 4, 5, 7, 23)

2. The only issue concerning the color of canned tuna to be determined on the basis of the evidence was raised in the objection filed by one packer, the operator of a cannery in Maine, who advocated changing the wording of § 37.1(d)(3) of the standard from:

(3) *Dark.* This color designation includes all tuna darker than Munsell value 5.3, to

(3) *Tuna.* This designation includes all tuna darker than Munsell value 5.3 canned from the light meat of tuna.

The objection did not make an issue of whether the method specified in the order was appropriate for making the differentiation between dark and light tuna; of whether the value for such differentiation was properly set at 5.3 on the Munsell scale; or of whether the standard should require the label designation for tuna darker than Munsell value 5.3 to be different from the label designation for tuna lighter than Munsell value 5.3. The sole issue was whether the standard should require cans containing tuna darker than Munsell value 5.3 to be labeled "dark tuna" rather than simply "tuna." (R. 9, 11–12, 14, 17, 38, 47, 54–55; Ex. 7)

3. The only witness who supported the objection to the label declaration "dark tuna" sometimes employed the phrase "light meat of tuna" to mean striated muscular tissue, as specified in § 37.1(c) of the standard, without regard to the color shade of such tissue. At other times, when referring to this same striated muscular tissue (as prepared from large blue-fin tuna and from Atlantic little tunny), the witness used the term "dark meat." Apparently, it was for this dark-colored, striated muscular tissue that he urged the change of the standard to provide for labeling it by the unmodified word "tuna" though he sometimes used the designation "dark meat" or "black meat" to mean non-striated tissue, which is an entirely different part of the fish and which the standard requires to be eliminated before canning. (R. 18, 33–34, 37, 43, 50, 66)

4. Several kinds of tuna have been caught in the Atlantic waters, but the only color determinations reported in the record are for the categories little tunny; large blue-fin tuna, exceeding 500 pounds in weight; and blue-fin tuna ranging in weight from 20 pounds to 104 pounds. These color determinations showed that little tunny and the large blue-fin tuna yield canned tuna of color darker than Munsell 5.3. The canned tuna prepared from the smaller blue-fin tuna (those not exceeding 104 pounds in weight) measured lighter than Munsell 5.3. (R. 10, 18, 29–30, 54, 58, 60, 74, 76; Ex. 8)

5. The canned article prepared from large blue-fin tuna, where the fish weighed in excess of 500 pounds each, not only was of a dark color but it was coarse in texture and had a distinctive taste, described as stronger, heartier, and more fishy. The opinion was expressed that this darker colored, stronger flavored article prepared from large blue-fin tuna would appeal to a limited segment of consumers. (R. 14, 33–35, 46–47, 58–59)

6. The responses to a questionnaire answered by more than 4,000 consumers showed an interest on the part of a substantial number of consumers in having labels show whether the meat in the can is light or dark. A consumer survey in which interviewers visited 252 households in which the homemaker used canned tuna showed that 65 percent of these homemakers regarded a color photograph of a can of tuna measuring 5.3 on the Munsell scale as dark tuna. Over two-thirds of the homemakers interviewed were interested in whether the tuna they serve is light or dark tuna, and substantially all wanted the label on the cans to show whether the tuna is light or dark. (R. 140–141, 162–164, 168, 172, 184–189, 202–204, 210–212, 273, 278–279, 281–282; Ex. 14, 17, 18, 24, 25, 26)

7. In households where canned tuna is used, one of the forms in which it is most frequently served is as a salad. For use as a salad the color of tuna is important to housewives and they wish to avoid dark tuna for salads. (R. 42, 168–169)

8. The other issue for the hearing arose from objections filed by distributors of water-pack tuna imported from Japan. These distributors objected to the requirement that the name on the label of such canned tuna should include the words "in water." They asserted: (a) That showing the words "in water" in the name would lead consumers to believe that water would be a major ingredient of the food and that cans so labeled would contain less fish than equal-sized cans of oil-pack tuna; (b) that consumers generally discard the oil from oil-pack canned tuna; (c) that by inference the provision concerning label declaration of the words "in water" requires that these words must follow the word "tuna" in the same line on labels. They declared that these assertions would be proved by consumer letters and consumer-survey data that would be produced at the hearing. (R. 86–87, 91, 98, 101, 106–107, 109, 111–114, 134–135; Ex. 23)

9. Historically, it has been conventional to use vegetable oil as the packing medium for canned tuna. Tuna canned in the United States, with the exception of tuna prepared for special dietary usage, has been packed in oil. Around 1951 or 1952 small quantities of imported canned tuna packed in water appeared on the United States markets. Since then, the volume of imported water-pack tuna has increased considerably but remains substantially below the total vol-

[1] The citations following each finding of fact refer to the pages of the transcript of testimony and the exhibits received in evidence at the hearing.

use of oil-pack tuna on the market. (R. 108, 112, 121, 127, 145–146, 148–149, 173, 249–250; Ex. 15, 16)

10. The assertion that consumers usually discard the oil from oil-pack tuna was not supported by the evidence presented at the hearing. The results of a questionnaire-type survey submitted by the Food and Drug Administration showed that of more than 4,000 consumers who answered the questionnaire, 56.4 percent reported that when using oil-pack tuna they either always or sometimes use the oil. This percentage agrees well with data published by the Fish and Wildlife Service of the United States Department of the Interior, showing that of more than 1,900 homemakers interviewed in a 1956 survey, 38.7 percent reported that in using oil-pack tuna they always use the oil with the fish and 20.4 percent reported that they sometimes use the oil. (R. 109, 150, 278–279; Ex. 16, 34–36)

11. Consumers are concerned whether the canned tuna they purchase is the conventional oil-pack article or is tuna packed in water. Some labels on water-pack tuna have shown "no oil added" or "without added oil," but, in general, the declaration that the tuna is packed in water has been so subordinated on labels that consumers would be apt to overlook it under customary conditions of purchase. Housewives serve canned tuna in various ways; they make salads, sandwiches, casserole dishes, tuna-with-noodles, and use tuna in other cooked dishes. Generally, recipes for the cooked dishes, and frequently those for tuna in salads, call for using the oil from the can along with the tuna fish. The oil adds richness and significantly increases the caloric value of the dishes. When following such recipes, a housewife using water-pack tuna needs to add butter, margarine, or salad oil. It promotes her interest for the label declaration showing that the tuna is packed in water to be so displayed that under ordinary conditions of purchase she will note it.

Some distributors of imported water-pack tuna have sought in their promotions to appeal to those consumers who wish to avoid high-calorie foods. These promotions have emphasized that canned tuna where water has been substituted for oil as the packing medium is lower in caloric value than conventional oil-pack tuna. The interest of these consumers also is promoted by a prominent label declaration to show that the tuna is packed in water. (R. 120, 128, 134, 137, 138, 167–174; Ex. 12)

12. A consumer survey especially designed to elicit evidence from a fair sample of homemakers on the issues raised in the objections to the canned tuna order was carried out by an organization experienced in conducting such consumer interviews. In this survey homemakers were shown cans of water-pack tuna under conditions designed to simulate those she would experience in marketing for canned foods. For cans with commercial labels, fairly representative of the labels that have been used on water-pack tuna and showing "Packed in water" on side panels, two-thirds of the homemakers interviewed mistakenly thought that the tuna was packed in oil. (R. 78–83, 178–190, 200–202, 207–210, 219, 221–223, 237, 245, 255, 270–271; Ex. 17–22)

13. The evidence at the hearing did not support the assertion by the objectors that including the words "in water" in the name on labels of water-pack tuna would lead consumers to believe water to be a major ingredient and to believe that the cans so labeled would contain less fish than similar cans of oil-pack tuna. In the consumer survey described in Finding 12, the interviewers showed homemakers cans of water-pack tuna with labels specially printed to conform to the requirements of the standard. The names on the labels were:

LIGHT TUNA FLAKES
IN WATER

and

SOLID PACK
LIGHT TUNA IN WATER

The homemakers were asked whether they thought the cans of water-pack tuna would contain less fish, the same amount of fish, or more fish than cans of the same size where the tuna is packed in oil. Half the homemakers answered that the amount of fish would be the same and the others divided about equally between answering that there would be less fish or more fish in the cans of water-pack tuna. Two witnesses trained in statistically evaluating such data testified that these results do not support the claim that showing the words "in water" in the names on labels would lead consumers to believe the cans contain less tuna fish. (R. 87, 106–107, 111–112, 125, 204, 213–214, 251, 267–269, 274–275; Ex. 17–22)

14. The objectors to the labeling requirement for water-pack tuna failed to show that it would promote consumer interests to rescind the provision that the words "in water" be included in the name and to substitute a requirement that water be named on labels as an optional ingredient. One witness, supporting the objections, expressed approval of a suggestion that the words "in water" be shown on labels in type half as large, and on a line below, the other words in the name. A witness, trained and employed in the field of home economics, objected to the use of smaller type for the words "in water." She explained that women are accustomed to getting tuna packed in oil and for that reason when the tuna is packed in water the label should declare "in water" in easily legible type. She made no specific objection to the suggestion that these words be shown in a line immediately below other words in the name. (R. 97, 152, 154, 156, 165–168, 170, 173)

Conclusions. On the basis of the foregoing findings of fact, and taking into consideration the substantial evidence of the entire record, it is concluded that, for the purpose of promoting honesty and fair dealing in the interest of consumers, the definition and standard of identity for canned tuna should not be changed by rescinding the requirement that the word "dark" be included in the label designation of tuna darker than Munsell value 5.3 or the requirement that the words "in water" be included in the name of water-pack canned tuna.

Any interested person whose appearance was filed at the hearing may, within 30 days from the date of publication of this proposed order in the FEDERAL REGISTER, file with the Hearing Clerk, Department of Health, Education, and Welfare, Room 5440, 330 Independence Avenue SW., Washington 25, D.C., written exceptions thereto. Exceptions shall point out with particularity the alleged errors in the proposed order and shall contain specific references to the pages of the transcript of testimony or to the exhibits on which the exceptions are based. Exceptions may be accompanied by briefs in support thereof. Exceptions and accompanying briefs should be submitted in quintuplicate.

Dated: March 21, 1961.

[SEAL] GEO. P. LARRICK,
Commissioner of Food and Drugs.

Note: See Commercial Fisheries Review, April 1961 p. 42.

* * * * *

STANDARDS OF IDENTITY PROPOSED FOR FROZEN RAW BREADED SHRIMP:

A Proposed definition and standard of identity for frozen raw breaded shrimp was published in the March 31, 1961, Federal Register, by the U. S. Food and Drug Administration. The notice points out that the National Fisheries Institute, and the National Shrimp Breaders Association, representing members who are processors of breaded shrimp, have jointly filed a petition setting forth a proposed definition and standard of identity for breaded shrimp.

The Food and Drug Administration proposes to add a new section to Part 36 of its regulations: "36.30 Frozen raw breaded shrimp (prawns); identity; label statement of optional ingredients."

The standard proposed establishes that the finished product contain not less than 50 percent by weight of shrimp material as determined by the method described in the proposed regulations. A description of frozen raw breaded shrimp is included, as well as the raw material to produce it. Among the shrimp material listed for breading are: fantail or butterfly shrimp (deveined and split); round or round fantail (deveined but not split); butterfly, tail-off (deveined and split, tail fin and shell segments removed); round, tail-off (deveined but not split, tail and shell segments removed); tidbits (parts of tail portions, but free of tail fin and shell segments). The batter and breading are described, and the optional ingredients that may be used in the preparation of the mixtures are listed. The names of the frozen raw breaded shrimp product prepared in accordance with proposed regulations are listed together with several alternatives in each case. Also, the regulations indicate that the label is to bear one of the names specified in the regulations, a statement listing the optional ingredients employed in the batter and breading, plus any spice or coloring used, if any; and if a chemical preservative has been used, the label is to indicate that fact.

Interested persons were invited to present their views in writing regarding the proposed regulations, prior to May 30, 1961.

U. S. Tariff Commission

REPORT ON SHRIMP:

The Tariff Commission on March 31 issued a report on its investigation of shrimp, conducted under Section 332 of the Tariff Act of 1930. The investigation was made pursuant to a resolution of the Senate Finance Committee, adopted in August 1960.

The Commission's report to the Senate Finance Committee describes the domestic shrimp fishery and the processing of shrimp in the United States; discusses domestic production, exports, imports, and consumption of raw shrimp and shrimp products; gives data on prices, cold-storage holdings, and wage rates in the United States; provides data on the shrimp fisheries of foreign countries; considers the interests of domestic producers, processors, and consumers of shrimp; and discusses the probable results of the imposition of the import restrictions set forth in the resolution.

The resolution of the Senate Committee called for an analysis of the possible results of a 35-percent ad valorem duty as well as an analysis of the results of a tariff quota under which all imports not in excess of the imports in the calendar year 1960 shall enter free of duty and all imports in excess of those in 1960 shall be dutiable at 50-percent ad valorem.

UNITED STATES TARIFF COMMISSION

SHRIMP

Report on Investigation No. 332-40
Under Section 332 of the Tariff Act of 1930
Pursuant to a Resolution of the
Committee on Finance of the United States Senate
Adopted in August 1960

Washington
March 1961

The Commission points out that the analysis ". . .describes the probable economic effects of the indicated import restrictions on those segments of the U. S. economy directly concerned with the production, handling, processing, importing, and marketing of shrimp. No attempt is made to set forth the possible effects on our foreign relations and other aspects of the national interest or on the economic welfare of the numerous foreign countries involved.

"In attempting to forecast the results of the imposition of a duty on shrimp, the Commission has premised a more or less constant per capita purchasing power during the next several years. Should a duty of 35 percent ad valorem be imposed on imports of shrimp, it is unlikely that the major foreign suppliers of the U. S. market could reduce their prices sufficiently to absorb most or all of the duty. Nor would the reduction or elimination of export duties and taxes now levied in certain foreign countries have a significant effect on the ability of foreign suppliers to overcome a U. S. duty of 35 percent ad valorem. The application of such a duty, therefore, would result in a substantial reduction of total U. S. imports of shrimp in all forms; the reduction in imports would be accompanied by a sharp increase in prices and a curtailment of consumption in the U. S. market. With a restricted supply and a continuation of high prices in the United States, a limited expansion of the domestic catch of shrimp might be expected within a year or two. This could be accomplished by an extension of the operations of the U.S. shrimp fleet to new areas, where fishing costs would be substantially higher than in the areas now exploited, and by a somewhat larger catch of shrimp in the Gulf of Mexico. If Mexico's exports of shrimp to the United States were sharply reduced by the imposition of a U. S. duty, the Mexican shrimp fleet presumably would be forced to reduce its operations in the Gulf of Mexico, thereby permitting the U. S. fleet operating in the same waters to increase its catch. The extent of the increase would be limited, however, because the U. S. fleet probably would not be permitted to fish in Mexico's territorial waters. At present, nearly three-fourths of Mexico's total shrimp catch is taken from the Gulf of California and other west-coast waters near the Mexican shore. If Mexican fleet operations were curtailed in these waters, it is unlikely that the U. S. shrimp fleet could extend its operations to the west coast of Mexico. It appears from the foregoing that only a small part of the loss of U. S. imports resulting from the imposition of a 35-percent duty on shrimp could be made up by an increase in the U. S. production of shrimp from the Gulf of Mexico and from areas not now being exploited.

"With a net reduction in the total supply of shrimp available in the U. S. market, prices in all channels of distribution would increase sharply and undoubtedly would remain higher than at present. High prices would be especially beneficial to domestic craft owners and fishermen, but not to processors (including freezers) who must purchase raw shrimp in the open market. As previously indicated, high prices would result in a curtailment of total consumption in the United States, particularly in those areas that are now dependent on imports partly because of their distance from domestic landing ports and processing facilities. Many institutional users throughout the country would replace shrimp with other food products, and household consumers would reduce their purchases of shrimp in favor of other seafoods, poultry, and meats.

"From the foregoing, it appears that the imposition of a 35-percent duty on shrimp would result in increased financial returns to the U. S. shrimp fleet as a whole. It would also result in higher average returns per shrimp craft and per fisherman at least in the short run. How long individual craft owners and fishermen would receive the benefit of increased financial returns is conjectural. High ex-vessel prices and enhanced profits to craft owners could be expected to encourage additions to the domestic shrimp fleet. With more vessels and boats fishing for a limited resource, the average annual catch per craft would eventually decline. As a result of the smaller catch per craft, the average annual income per craft and per fisherman also would decline from the high levels attained immediately after the imposition of the duty.

"Certain packinghouses and freezers of shrimp are able to avoid the hazards of price fluctuations by charging a fixed fee per pound of shrimp for the services they perform, irrespective of market prices; the welfare of this group, therefore, is determined largely by the quantity of shrimp handled. Such packinghouses and freezers would benefit from any increase in domestic landings of shrimp; they would not, however, benefit from increased prices unless they were able to raise their fees.

"A duty of 35 percent on all shrimp and shrimp products undoubtedly would arrest the increasing imports of frozen peeled and deveined shrimp and frozen breaded shrimp and reduce the imports of canned shrimp. Domestic breaders,

canners, and producers of frozen peeled and deveined shrimp apparently are concerned about the expansion in recent years of processing facilities abroad and the possibility of a substantial increase in imports of the processed products. Whether imposition of a 35-percent duty would eliminate such imports entirely cannot be determined, but it would certainly discourage the expansion of facilities abroad to process shrimp for exportation to the United States. Elimination of the possibility of more intense competition from imports of processed shrimp would be of little benefit to domestic processors since restrictions of imports of all shrimp would cause more intense competition among the processors in the purchase of raw material and would arrest the expansion of shrimp-processing operations in the United States. Certain processors, particularly breaders, now rely heavily on imports of frozen heads-off, shell-on shrimp for their raw material supplies. If such imports were greatly reduced, some processors outside the South Atlantic and Gulf States might have to curtail their operations substantially or even discontinue production of processed shrimp. For processors in the South Atlantic and Gulf States, some of which rely partly on imported frozen shrimp, increased raw-material costs would tend to reduce the extent and profitableness of their operations. A uniform duty on all shrimp, therefore, would be generally detrimental to shrimp processors.

"A U. S. duty of 35 percent on shrimp, and the resultant high prices in the U. S. market, would no doubt cause a substantial reduction of the U. S. exports of shrimp. In terms of heads-off, shell-on shrimp, domestic exports were equivalent to 7½ percent of total U. S. landings of shrimp in 1960.

"Imposition of the tariff quota specified in the resolution of the Senate Finance Committee would have a less drastic effect on the shrimp trade than would a 35-percent duty on all imports of shrimp. Provision for the annual duty-free entry of imports equal to the quantity of shrimp imported in 1960 would not reduce the total supply of shrimp available in the U. S. market and presumably would not immediately cause a marked upturn in prices. However, should the quota be stated in terms of pounds--irrespective of the form in which the shrimp were imported--it might result in a substantial shift in the composition of imports from frozen heads-off, shell-on shrimp to more advanced forms of processed shrimp. On the one hand, such a shift would work to the disadvantage of domestic producers of the more advanced forms of processed shrimp, not only because of increased competition from imports of the processed products, but also because of a reduced supply of imported frozen heads-off, shell-on shrimp, which are used as raw material by many processors. On the other hand, domestic craft owners, fishermen, and freezers of raw shrimp would benefit from the shift in imports; because of the smaller supply of imported frozen heads-off, shell-on shrimp, the demand for domestic raw shrimp by retail and institutional outlets would be increased.

"Should a separate quota be established for each form of shrimp, based on imports in 1960, it would halt the development of facilities abroad to process shrimp for exportation to the United States. Although domestic processors would benefit from restrictions of imports of the processed products, the quota on raw shrimp would preclude a continued expansion of processing operations in the United States because of a restricted supply of raw material. Craft owners and fishermen would be aided by the assurance that they could expect no more competition from imports than that encountered in 1960. Restriction of imports of each form of shrimp to the 1960 level presumably would prevent the price-depressing effects of sudden sharp increases in imports and might provide a measure of stability to the shrimp market, which would be beneficial to all segments of the shrimp trade.

"A global annual quota on imports of shrimp, without allocation by country of origin, would affect the supplying countries in varying degrees. Those countries able to ship to the United States early in the year could fill the quota and prevent other countries from sharing in it. Country quotas based solely on the level of imports in 1960, as implied in the resolution of the Senate Finance Committee, would be most detrimental to those countries whose shipments to the United States were smaller in 1960 than in earlier years (e.g., Japan, Costa Rica, Peru, Australia, Norway, Korea, Argentina, Sweden, West Germany, Israel, British Honduras, and the United Kingdom). Moreover, if one or several supplying countries could not fill their quotas in a particular year, a shortage might develop in the U. S. market and affect many segments of the shrimp trade.

"It is unlikely that there would be any significant imports of shrimp at the over-quota rate of 50 percent ad valorem. Shipments arriving in the United States after the quota was filled probably would be diverted to other markets or held in bonded warehouses in the United States for entry at the opening of the new quota year.

"It should be recognized that if the supply of shrimp is not restricted and if prices thereof do not increase greatly, the long-run expansion of the total U. S. consumption of shrimp may be expected to continue. Several factors, in addition to the growth in population, point to this conclusion. Potential markets exist in some areas of the United States where shrimp are regarded as a luxury item and where only small quantities are now purchased for home use. The nutritional value, the low-calorie content, and the taste appeal of shrimp are not yet widely known in the mass consumer market. The increasing acceptance of individually frozen peeled and deveined shrimp, which can be served in the home with little preparation, may be expected to continue. The rising consumption of breaded shrimp has not yet shown a tendency to level off. Of the major processed shrimp products, canned shrimp is the only type that has not grown in popularity in U. S. consumer markets in the past decade.

"The imposition of either of the import restrictions on shrimp and shrimp products suggested in the resolution of the Senate Finance Committee would limit the supply of shrimp available in the U. S. market and thereby arrest the long-run expansion of shrimp consumption in the United States. If imports were restricted to the 1960 level or lower, any increase in consumption above the present level would have to be supplied by domestic production. Although the U. S. catch of shrimp may vary from year to year, there appears to be little probability of a sustained increase in the catch, even on the west coast where the large potential supply consists almost entirely of small-size shrimp suitable primarily for the production of canned shrimp, a product which has a relatively stable but limited market in the United States."

Note: Title of report: "Shrimp. Report on Investigation No. 332-40 Under Section 332 of the Tariff Act of 1930 Pursuant to a Resolution of the Committee on Finance of the United States Senate Adopted in August 1960." U. S. Tariff Commission, Washington, D. C., March 1961.

Treasury Department

BUREAU OF CUSTOMS

IMPORT RESTRICTIONS ON SOVIET CANNED CRAB MEAT LIFTED:

The removal by the United States of a prohibition on imports of Soviet canned crabmeat, which has been in effect since January 27, 1951, was announced by the Treasury Department on March 20, 1961, and published in the Federal Register of March 25, 1961.

The prohibition was placed in force under Section 307 of the U. S. Tariff Act, which

bans imports of goods produced with convict or forced labor.

The decision to remove the prohibition on imports of Soviet canned crab meat is in accordance with United States law, and is based upon the fact that there is no current evidence that prison or forced labor is still being used in connection with Soviet canned crab meat.

A Treasury spokesman said:

"If the removal of this restriction also helps to promote better relations between the Soviet Union and the United States, it should be welcomed by the peoples of both countries.

"This action supports the President's desire for improved relations between the Soviet and American peoples and the often-expressed willingness of the United States Government to offer the Soviet Union every opportunity to trade with us in peaceful goods on normal commercial terms.

"In connection with this action, representatives of the State of Alaska have expressed concern over possible expanded activities of foreign fishing fleets in areas of the high seas near Alaska. We understand that the Department of State has long been aware of the problems which would be posed by the expansion of foreign fishing activities into new areas of primary interest to Alaskan fishermen, and is giving serious consideration to this matter, which involves complex aspects of conservation and fisheries policy."

The Treasury Department in answering questions with regard to their announcement indicated:

1. The information available indicates that no forced labor is involved in the Soviet canning operation. The Secretary of the Treasury, who administers this law, has gone over the available evidence and determined that removing the prohibition is justified.

2. In 1950 the United States imported some 2.3 million pounds of canned Soviet king crab meat with a value of roughly US$2.3 million.

3. The product involved is the king crab found only in far northern Pacific waters. It could compete directly with some one million pounds canned in Alaska, with a value of roughly US$1.4 million. Indirectly, it could compete with some 2 million pounds of other domestic varieties, with a value of roughly US$2.1 million. It should be pointed out that Soviet crab meat will be subject to the normal import duty of 22½ percent ad valorem.

4. Total United States production of king crabs was about 18 million pounds of which about 4 million was canned, yielding a canned weight of about one million pounds.

The notice as it appeared in the Federal Register follows:

[T.D. 55942]

PART 12—SPECIAL CLASSES OF MERCHANDISE

Canned Crabmeat From Union of Soviet Socialist Republics

I hereby find, pursuant to the provisions of § 12.42, Customs Regulations, promulgated in accordance with the authority contained in section 307, Tariff Act of 1930 (19 U.S.C. 1307), that canned crabmeat manufactured or produced wholly or in part in the Union of Soviet Socialist Republics does not come within the purview of section 307, Tariff Act of 1930.

Accordingly, on and after the date of the publication of this finding in the FEDERAL REGISTER, the finding made in T.D. 52656 (16 F.R. 776) is no longer in effect.

Section 12.42(h), Customs Regulations, is amended by deleting from the list the following:

Canned crabmeat—Union of Soviet Socialist Republics—52655

(Secs. 307, 624, 46 Stat. 689, 759; 19 U.S.C. 1307, 1624)

[SEAL] D. B. STRUBINGER,
Acting Commissioner of Customs.

Approved: March 20, 1961.

DOUGLAS DILLON,
Secretary of the Treasury.

* * * * *

QUOTA FOR 1961 ESTABLISHED ON IMPORTS OF CANNED TUNA:

The quantity of tuna canned in brine which may be imported into the United States during calendar year 1961 at the 12½-percent rate of duty is limited to 57,114,714 pounds. This is 6.9 percent more than the 53,448,330 pounds in 1960, 9.1 percent more than the 52,372,574 pounds in 1959, 27.8 percent more than the 44,693,874 pounds in 1958, and 25.6 percent more than the 45,460,000-pound quota for 1957. Any imports in excess of the 1960 quota will be dutiable at 25 percent ad valorem.

Any tuna classifiable under Tariff Act paragraph 718(b)--fish, prepared or preserved in any manner, when packed in airtight containers. . .(except fish packed in oil or in oil and other substances;. . .)--which is entered or withdrawn for consumption is included.

A proclamation (No. 3128), issued by the President on March 16, 1956, gave effect to an exchange of notes with the Government of Iceland to withdraw tuna canned in brine from the 1943 trade agreement and invoked the right to increase the duty reserved by the United States in negotiations with Japan and other countries under the General Agreement on Tariffs and Trade. The quota is based on 20 percent of the previous year's United States pack of canned tuna. The announcement as it appeared in the April 11, 1961, Federal Register follows:

DEPARTMENT OF THE TREASURY

Bureau of Customs

[T.D. 56360]

TUNA FISH

Tariff-Rate Quota

APRIL 5, 1961.

Pursuant to Presidential Proclamation No. 3128 of March 16, 1956 (T.D. 54051), it has been determined that 57,114,714 pounds of tuna may be entered for consumption or withdrawn from warehouse for consumption during the calendar year 1961 at the rate of 12½ per centum ad valorem under paragraph 718(b), Tariff Act of 1930, as modified. Any tuna classifiable under paragraph 718(b) of the tariff act which is entered, or withdrawn, for consumption during the current calendar year in excess of this quota will be dutiable at the full rate of 25 per centum ad valorem.

The above quota is based on the United States pack of canned tuna during the calendar year 1960, as reported by the United States Fish and Wildlife Service.

[SEAL] PHILIP NICHOLS, JR.,
Commissioner of Customs.

White House

NORTH PACIFIC 1961 HALIBUT FISHING REGULATIONS APPROVED BY PRESIDENT:

On March 29, 1961, the President of the United States approved the 1961 North Pacific halibut fishing regulations as recommended by the International Pacific Halibut Commission.

The regulations as published in the April 8, 1961, Federal Register follow:

Title 50—WILDLIFE AND FISHERIES

Chapter III—International Regulatory Agencies (Fishing and Whaling)

PART 301—PACIFIC HALIBUT FISHERIES

Regulations of the International Pacific Halibut Commission adopted pursuant to the Pacific Halibut Fishery Convention between the United States of America and Canada, signed March 2, 1953.

Sec.
301.1 Regulatory areas.
301.2 Length of halibut fishing seasons.
301.3 Closed seasons.
301.4 Catch limits in Areas 2 and 3A.
301.5 Size limits.
301.6 Licensing of vessels.
301.7 Retention of halibut taken under permit.
301.8 Conditions limiting validity of permits.
301.9 Statistical return by vessels.
301.10 Statistical return by dealers.
301.11 Dory gear prohibited.
301.12 Nets prohibited.
301.13 Retention of tagged halibut.
301.14 Responsibility of master.
301.15 Supervision of unloading and weighing.
301.16 Previous regulations superseded.

AUTHORITY: §§ 301.1 to 301.16 issued under Art. III, 50 Stat., Part II, 1953.

§ 301.1 Regulatory areas.

(a) Convention waters which include the territorial waters and the high seas off the western coasts of Canada and the United States of America including the southern as well as the western coasts of Alaska shall be divided into the following areas, all directions given being magnetic unless otherwise stated.

(b) Area 1A (South of Heceta Head) shall include all convention waters southeast of a line running northeast and southwest through Heceta Head Light, as shown on Chart 5802, published in July 1947, by the United States Coast and Geodetic Survey, Washington, D.C., which light is approximately latitude 44°08'18" N., longitude 124°07'36" W.

(c) Area 1B (Heceta Head to Willapa Bay) shall include all convention waters between Area 1A and a line running northeast and southwest through Willapa Bay Light on Cape Shoalwater, as shown on Chart 6185, published in July 1939, by the United States Coast and Geodetic Survey, which light is approximately latitude 46°43'17" N., longitude 124°04'15" W.

(d) Area 2 (Willapa Bay to Cape Spencer) shall include all convention waters off the coasts of the United States of America and of Alaska and of Canada between Area 1B and a line running through the most westerly point of Glacier Bay, Alaska, to Cape Spencer Light as shown on Chart 8304, published in June 1940, by the United States Coast and Geodetic Survey, which light is approximately latitude 58°11'57" N., longitude 136°38'18" W.; thence south one-quarter east.

(e) Area 3A (Cape Spencer to Shumagin Islands) shall include all the convention waters off the coast of Alaska that are between Area 2 and a straight line running southeast one-half east from the highest point on Kupreanof Point, which highest point is approximately latitude 56°34'08" N., longitude 159°36'00" W.; the highest point on Kupreanof Point shall be determined from Chart 8859 as published May 1954 (3d Edition) by the United States Coast and Geodetic Survey.

(f) Area 3B South (Shumagin Islands to Cape Sagak, Umnak Island not including Bering Sea) shall include all convention waters off the coast of Alaska that are between Area 3A and a straight line running southwest by west from Cape Sagak, the southwestern extremity of Umnak Island, at a point approximately latitude 53°49'20" N., longitude 169°07'00" W., and that are south of straight lines running from Cape Kabuch Light at the head of Ikatan Bay, which light is approximately latitude 54°49'00" N., longitude 163°21'36" W.; thence to Scotch Cap Light at the western end of Unimak Island, which light is approximately latitude 54°23'48" N., longitude 164°44'30" W.; thence to Brundage Head on Unalaska Island, which head is approximately latitude 53°56'00" N., longitude 166°12'36" W.; thence to Cape Aiak on Unalaska Island, which cape is approximately latitude 53°15'45" N., longitude 167°29'30" W.; thence to Cape Sagak. The positions of Cape Kabuch Light, Scotch Cap Light and Brundage Head were determined from Chart 8860, published 1942 (13th Edition), and the positions of Cape Sagak and Cape Aiak were determined from Chart 8861, published in May 1942, revised April 1959, both charts as published by the U.S. Coast and Geodetic Survey.

(g) Area 3B North (Bering Sea and Aleutian Islands west of Cape Sagak) shall include all convention waters which are not included in Areas 1A, 1B, 2, 3A, and 3B South.

§ 301.2 Length of halibut fishing seasons.

(a) In Area 1A, the halibut fishing season shall commence at 6:00 a.m. of the 10th day of May and terminate at 6:00 a.m. of the 1st day of October, or at the time of termination of the halibut fishing season in Area 3A, whichever is later.

(b) In Area 1B, the halibut fishing season shall commence and terminate at the same time as the halibut fishing season in Area 2 shall commence and terminate.

(c) In Area 2, the halibut fishing season shall commence at 6:00 a.m. on the 10th day of May and terminate at 6:00 a.m. on a date to be determined and announced under paragraph (b) of § 301.4.

(d) In Area 3A, the halibut fishing season shall commence at 6:00 a.m. of the 10th day of May and terminate at 6:00 a.m. on a date to be determined and announced under paragraph (b) of § 301.4.

(e) In Area 3B South, the halibut fishing season shall commence at 6:00 a.m. of the 25th day of April and terminate at 6:00 a.m. of the 1st day of October, or at the time of termination of the halibut fishing season in Area 3A, whichever is later.

(f) In Area 3B North, the halibut fishing season shall commence at 6:00 a.m. of the 10th day of April and terminate at 6:00 a.m. of the 1st day of October, or at the time of termination of the halibut fishing season in Area 3A, whichever is later.

(g) All hours of opening and closing of areas in this section and other sections of these regulations shall be Pacific standard time.

§ 301.3 Closed seasons.

(a) Under paragraph 1 of Article I of the Convention, all convention waters shall be closed to halibut fishing except as provided in § 301.2.

(b) All convention waters, if not already closed under other provisions of these regulations, shall be closed to halibut fishing at 6:00 a.m. of the 1st day of December and shall remain closed until reopened as provided in § 301.2, and the retention and landing of any halibut caught during this closed period shall be prohibited.

(c) Nothing contained in these regulations shall prohibit the fishing for species of fish other than halibut during the closed halibut seasons, provided that it shall be unlawful for a vessel to have halibut aboard, or for any person to have halibut in his possession while so engaged except as provided for in § 301.7. Nor shall anything in these regulations prohibit the International Pacific Halibut Commission, hereafter in these regulations referred to as "the Commission", from conducting or authorizing fishing operations for investigation purposes as

provided for in paragraph 3 of Article I of the Convention.

§ 301.4 Catch limits in Areas 2 and 3A.

(a) The quantity of halibut to be taken during the halibut fishing season in Area 2 and during the halibut fishing season in Area 3A in 1961 shall be limited to 28,000,000 pounds and 33,000,000 pounds respectively of salable halibut, the weights in each limit to be computed as with heads off and entrails removed.

(b) The Commission shall as early in the said year as is practicable determine and announce the date on which it deems each limit of catch defined in paragraph (a) of this section will be attained, and the limit of each such catch shall then be that which shall be taken prior to said date, and fishing for halibut in the area to which each limit applies shall at that date be prohibited until each area is reopened to halibut fishing as provided in § 301.2, and provided that if it shall at any time become evident to the Commission that the limit will not be reached by such date, it may substitute another date.

(c) Catch limits shall apply only to the halibut fishing season in Area 2 and to the halibut fishing season in Area 3A.

§ 301.5 Size limits.

The catch of halibut to be taken from all areas shall be limited to halibut which with head on are 26 inches or more in length as measured from the tip of the lower jaw to the extreme end of the middle of the tail or to halibut which with the head off and entrails removed are 8 pounds or more in weight, and the possession of any halibut of less than the above length, or the above weight, according to whether the head is on or off, by any vessel or by any master or operator of any vessel or by any person, firm or corporation, is prohibited.

§ 301.6 Licensing of vessels.

(a) All vessels of any tonnage which shall fish for halibut in any manner or hold halibut in possession in any area, or which shall transport halibut otherwise than as a common carrier documented by the Government of the United States or of Canada, for the carriage of freight, must be licensed by the Commission, provided that vessels of less than five net tons or vessels which do not use set lines need not be licensed unless they shall require a permit as provided in § 301.7.

(b) Each vessel licensed by the Commission shall carry on board at all times while at sea the halibut license thus secured whether it is validated for halibut fishing or endorsed with a permit as provided in § 301.8, and this license shall at all times be subject to inspection by authorized officers of the Governments of Canada or the United States or by representatives of the Commission.

(c) The halibut license shall be issued without fee by the customs officers of the Governments of Canada or the United States or by representatives of the Commission or by fishery officers of the Governments of Canada or the United States at places where there are neither customs officers nor representatives of the Commission. A new license may be issued by the officer accepting statistical return at any time to vessels which have furnished proof of loss of the license form previously issued, or when there shall be no further space for record thereon, providing the receipt of statistical return shall be shown on the new form for any halibut or other species taken during or after the voyage upon which loss occurred.

(d) The halibut license of any vessel shall be validated before departure from port for each halibut fishing operation for which statistical return is required. This validation of a license shall be by customs officers or by fishery officers of the Governments of Canada or the United States when available at places where there are no customs officers and shall not be made unless the area in which the vessel will fish is entered on the license form and unless the provisions of § 301.9 have been complied with for all landings and all fishing operations since issue of the license, provided that if the master or operator of any vessel shall fail to comply with the provisions of § 301.9, the halibut license of such vessel may be validated by customs officers or by fishery officers upon evidence either that there has been a judicial determination of the offense or that the laws prescribing penalties therefor have been complied with, or that the said master or operator is no longer responsible for, nor sharing in, the operations of said vessel.

(e) The halibut license of any vessel fishing for halibut in Area 1A as defined in § 301.1 must be validated at a port or place within Area 1A prior to each such fishing operation when Areas 1B and 2 are closed to halibut fishing.

(f) The halibut license of any vessel fishing for halibut in Area 3B South or Area 3B North when Area 3A is closed to halibut fishing must be validated at a port or place within Area 3B South prior to such fishing, except as provided in paragraph (g) of this section.

(g) Any vessel already fishing in Area 3B South or in Area 3B North prior to the date of closure of Area 3A may continue to fish in said areas until first entry at a port or place with a validating officer or until any halibut is unloaded. The vessel must comply with paragraph (h) of this section when it departs from Area 3B North and 3B South.

(h) The halibut license of any vessel departing from Areas 3B South and 3B North with any halibut on board when Area 3A is closed to halibut fishing, must be validated at a port or place in Area 3B South subsequent to fishing and prior to such departure.

(i) A halibut license shall not be validated for departure for halibut fishing in Areas 1A or 1B or 2 more than 48 hours prior to the commencement of any halibut fishing season in said areas.

(j) A halibut license shall not be validated for departure for halibut fishing in Areas 3A or 3B South or 3B North from any port or place inside said areas more than 48 hours prior to the commencement of the halibut fishing season in each of said areas, except that a halibut license validated for fishing in Area 3B North prior to the opening of Area 3B South may at the same time be validated for halibut fishing in Area 3B South when the latter area is opened; nor shall a halibut license be validated for departure for halibut fishing in Area 3A from any port or place outside said area more than 5 days prior to commencement of the halibut fishing season in said area.

(k) A halibut license shall not be valid for halibut fishing in more than one of Areas 1A, 1B, 2, or 3A, as defined in § 301.1, during any one trip nor shall it be revalidated for halibut fishing in another of said areas while the vessel has any halibut on board.

(l) A halibut license may be validated for halibut fishing in more than one of Areas 3A, 3B South or 3B North except that when Area 3A is closed such validation shall be subject to the conditions contained in paragraphs (f), (g), and (h) of this section and to any other applicable provisions of these regulations.

(m) A halibut license shall not be valid for halibut fishing in any area closed to halibut fishing nor for the possession of halibut in any area closed to halibut fishing except while in actual transit to or within a port of sale. The said license shall become invalid for the possession of halibut if the licensed vessel is fishing or attempting to fish for any species of fish in any area closed to halibut fishing.

(n) Any vessel which is not required to be licensed for halibut fishing under paragraph (a) of this section shall not possess any halibut of any origin in any area closed to halibut fishing except while in actual transit to or within a port of sale.

(o) A halibut license shall not be valid for halibut fishing in any area while a permit endorsed thereon is in effect, nor shall it be validated while halibut taken under such permit is on board.

(p) A halibut license when validated for halibut fishing in Area 3A shall not be valid for the possession of any halibut in Area 2 if said vessel is in possession of baited gear more than 25 miles from Cape Spencer Light, Alaska; and a halibut license when validated for halibut fishing in Area 3B South or in Area 3B South and Area 3B North shall not be valid for the possession of any halibut in Area 3A, when Area 3A is closed to halibut fishing, if said vessel is in possession of baited gear more than 20 miles by navigable water route from the boundary between Areas 3A and 3B South.

(q) No person on any vessel which is required to have a halibut license under paragraph (a) of this section shall fish for halibut or have halibut in his possession, unless said vessel has a valid license issued and in force in conformity with the provisions of this section.

§ 301.7 Retention of halibut taken under permit.

(a) There may be retained for sale on any vessel which shall have a permit as provided in § 301.8 such halibut as is caught incidentally to fishing by that vessel in any area after it has been closed to halibut fishing under § 301.2 or § 301.4 with set lines (of the type commonly used in the Pacific Coast halibut fishery) for other species, not to exceed at any time one pound of halibut for each seven pounds of salable fish, actually utilized, of other species not including salmon or tuna; and such halibut may be sold as the catch of said vessel, the weight of all fish to be computed as with heads off and entrails removed, provided that it shall not be a violation of this regulation for any such vessel to have in possession halibut in addition to the amount herein allowed to be sold if such additional halibut shall not exceed thirty percent of such amount and shall be forfeited and surrendered at the time of landing as provided in paragraph (d) of this section.

(b) Halibut retained under such permit shall not be filleted, fitched, steaked or butchered beyond the removal of the head and entrails while on the catching vessel.

(c) Halibut retained under such permit shall not be landed or otherwise removed or be received by any person, firm or corporation from the catching vessel until all halibut on board shall have been reported to a customs, fishery or other authorized enforcement officer of the Governments of Canada or the United States by the captain or operator of said vessel and also by the person, firm or corporation receiving the halibut, and no halibut or other fish shall be landed or removed or be received from the catching vessel, except with the permission of said officer and under such supervision as the said officer may deem advisable.

(d) Halibut retained under such permit shall not be purchased or held in possession by any person other than the master, operator or crew of the catching vessel in excess of the proportion allowed in paragraph (a) of this section until such excess, whatever its origin, shall have been forfeited and surrendered to the customs, fishery or other authorized officers of the Governments of Canada or the United States. In forfeiting such excess, the vessel shall be permitted to surrender any part of its catch of halibut: *Provided*, That the amount retained shall not exceed the proportion herein allowed.

(e) Permits for the retention and landing of halibut caught in all convention waters in the year 1961 shall become invalid at 6:00 a.m. of the 16th day of November of said year or at such earlier date as the Commission shall determine.

§ 301.8 Conditions limiting validity of permits.

(a) Any vessel which shall be used in fishing for other species than halibut in any area after it has been closed to halibut fishing under §§ 301.2 or 301.4 must have a halibut license and a permit if it shall retain, land or sell any halibut caught incidentally to such fishing or possess any halibut of any origin during such fishing, as provided in § 301.7.

(b) The permit shall be shown by endorsement of the issuing officer on the face of the halibut license form held by said vessel and shall show the area or areas for which the permit is issued.

(c) The permit shall terminate at the time of the first landing thereafter of fish of any species and a new permit shall be secured before any subsequent fishing operation for which a permit is required.

(d) A permit shall not be issued to any vessel which shall have halibut on board taken while said vessel was licensed to fish in an open area unless such halibut shall be considered as taken under the issued permit and shall thereby be subject to forfeiture when landed if in excess of the proportion permitted in paragraph (a) of § 301.7.

(e) A permit shall not be issued to, or be valid if held by, any vessel which shall fish with other than set lines of the type commonly used in the Pacific Coast halibut fishery.

(f) The permit of any vessel shall not be valid unless the permit is granted before departure from port for each fishing operation for which statistical returns are required. This granting of a permit shall be by customs officers or by fishery officers of the Governments of Canada or the United States when available at places where there are no customs officers and shall not be made unless the area or areas in which the vessel will fish is entered on the halibut license form and unless the provisions of § 301.9 have been complied with for all landings and all fishing operations since issue of the license or permit, provided that if the master or operator of any vessel shall fail to comply with the provisions of § 301.9, the permit of such vessel may be granted by customs or fishery officers upon evidence either that there has been a judicial determination of the offense or that the laws prescribing penalties therefor have been complied with, or that the said master or operator is no longer responsible for, nor sharing in, the operations of said vessel.

(g) The permit of any vessel shall not be valid if said vessel shall have in its possession at any time halibut in excess of the amount allowed under paragraph (a) of § 301.7.

(h) No person shall retain, land or sell any halibut caught incidentally to fishing for other species in any area closed to halibut fishing under § 301.2 or § 301.4, or shall have halibut of any origin in his possession during such fishing, unless such person is a member of the crew of and is upon a vessel with a halibut license and with a valid permit issued and in force in conformity with the provisions of §§ 301.7 and 301.8.

§ 301.9 Statistical return by vessels.

(a) Statistical return as to the amount of halibut taken during fishing operations must be made by the master or operator of any vessel licensed under these regulations and as to the amount of halibut and other species by the master or operator of any vessel operating under permit as provided for in §§ 301.7 and 301.8, within 96 hours of landing, sale or transfer of halibut or of first entry thereafter into a port where there is an officer authorized to receive such return.

(b) The statistical return must state the port of landing and the amount of each species taken within the area or areas defined in these regulations, for which the vessel's license is validated for halibut fishing or within the area or areas for which the vessel's license is endorsed as a permit.

(c) The statistical return must include all halibut landed or transferred to other vessels and all halibut held in possession on board and must be full, true and correct in all respects herein required.

(d) The master or operator or any person engaged on shares in the opera-

tion of any vessel licensed or holding a permit under these regulations may be required by the Commission or by any officer of the Governments of Canada or the United States authorized to receive such return to certify to its correctness to the best of his information and belief and to support the certificate by a sworn statement. Validation of a halibut license or issuance of a permit after such sworn return is made shall be provisional and shall not render the license or permit valid in case the return shall later be shown to be false or fraudulently made.

(e) The master or operator of any vessel holding a license or permit under these regulations shall keep an accurate log of all fishing operations including therein date, locality, amount of gear used, and amount of halibut taken daily in each such locality. This log record shall be retained for a period of two years and shall be open to inspection by representatives of the Commission authorized for this purpose.

(f) The master, operator or any other person engaged on shares in the operation of any vessel licensed under these regulations may be required by the Commission or by any officer of the Governments of Canada or the United States to certify to the correctness of such log record to the best of his information and belief and to support the certificate by a sworn statement.

§ 301.10 Statistical return by dealers.

(a) All persons, firms or corporations that shall buy halibut or receive halibut for any purpose from fishing or transporting vessels or other carrier shall keep and on request furnish to customs officers or to any enforcing officer of the Governments of Canada or the United States or to representatives of the Commission, records of each purchase or receipt of halibut, showing date, locality, name of vessel, person, firm or corporation purchased or received from and the amount in pounds according to trade categories of the halibut and other species landed with the halibut.

(b) All persons, firms or corporations receiving fish from a vessel fishing under permit as provided in § 301.7 shall within 48 hours make to an authorized enforcement officer of the Governments of Canada or the United States a signed statistical return showing the date, locality, name of vessel received from and the amount of halibut and of other species landed with the halibut and certifying that permission to receive such fish was secured in accordance with paragraph (c) of § 301.7. Such persons, firms or corporations may be required by any officer of the Governments of Canada or the United States to support the accuracy of the above signed statistical return with a sworn statement.

(c) All records of all persons, firms or corporations concerning the landing, purchase, receipt and sale of halibut and other species landed therewith shall be retained for a period of two years and shall be open at all times to inspection by any enforcement officer of the Governments of Canada or the United States or by any authorized representative of the Commission. Such persons, firms or corporations may be required to certify to the correctness of such records and to support the certificate by a sworn statement.

(d) The possession by any person, firm or corporation of halibut which such person, firm or corporation knows to have been taken by a vessel without a valid halibut license or a vessel without a permit when such license or permit is required, is prohibited.

(e) No person, firm or corporation shall unload any halibut from any vessel that has fished for halibut in Area 3B South or in Area 3B North after the closure of Area 3A unless the license of said vessel has been validated at a port or place in Area 3B South as required in paragraphs (f) and (h) of § 301.6 or unless permission to unload such halibut has been secured from an enforcement officer of the Governments of Canada or the United States.

§ 301.11 Dory gear prohibited.

The use of any hand gurdy or other appliance in hauling halibut gear by hand power in any dory or small boat operated from a vessel licensed under the provisions of these regulations is prohibited in all convention waters.

§ 301.12 Nets prohibited.

It is prohibited to retain halibut taken in any convention waters with a net of any kind or to have in possession any halibut in said areas while using any net or nets other than bait nets for the capture of other species of fish, nor shall any license or permit validated for said areas under these regulations be valid during the use or possession on board of any net or nets other than bait nets, provided that the character and the use of said bait nets conform to the laws and regulations of the country where they may be utilized and that said bait nets are utilized for no other purpose than the capture of bait for said vessel.

§ 301.13 Retention of tagged halibut.

Nothing contained in these regulations shall prohibit any vessel at any time from retaining and landing any halibut which bears a Commission tag at the time of capture, provided that such halibut with the tag still attached is reported at the time of landing to representatives of the Commission or to enforcement officers of the Governments of Canada or the United States and is made available to them for examination.

§ 301.14 Responsibility of master.

Wherever in these regulations any duty is laid upon any vessel, it shall be the personal responsibility of the master or operator of said vessel to see that said duty is performed and he shall personally be responsible for the performance of said duty. This provision shall not be construed to relieve any member of the crew of any responsibility with which he would otherwise be chargeable.

§ 301.15 Supervision of unloading and weighing.

The unloading and weighing of the halibut of any vessel licensed under these regulations and the unloading and weighing of halibut and other species of any vessel holding a permit under these regulations shall be under such supervision as the customs or other authorized officer may deem advisable in order to assure the fulfillment of the provisions of these regulations.

§ 301.16 Previous regulations superseded.

These regulations shall supersede all previous regulations adopted pursuant to the Convention between Canada and the United States of America for the preservation of the halibut fishery of the Northern Pacific Ocean and Bering Sea, signed March 2, 1953, except as to offenses occurring prior to the approval of these regulations. These regulations shall be effective as to each succeeding year, with the dates herein specified changed accordingly, until superseded by subsequently approved regulations. Any determination made by the Commission pursuant to these regulations shall become effective immediately.

WILLIAM M. SPEISER,
Chairman.
ANDREW W. ANDERSON,
Vice Chairman.
WILLIAM A. REED.
HAROLD S. HELLAND.
MATTIAS MADSEN.
RICHARD NELSON.

WILLIAM M. SPEISER,
Chairman.
H. A. DUNLOP,
Secretary.

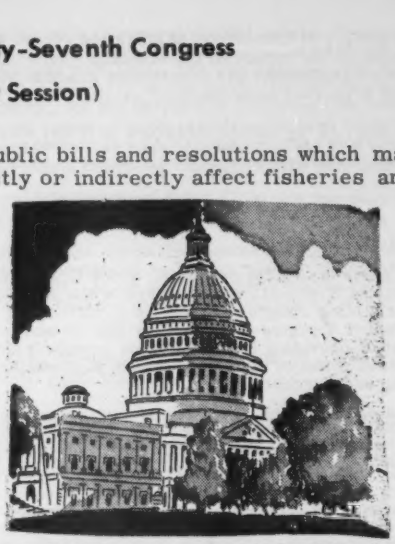
Approved: March 29, 1961.

JOHN F. KENNEDY.

Eighty-Seventh Congress

(First Session)

Public bills and resolutions which may directly or indirectly affect fisheries and



allied industries are reported. Introduction, referral to committees, pertinent legislative actions, hearings, and other actions by the House and Senate, as well as signature into law or other final disposition are covered.

ATLANTIC STATES MARINE FISHERIES COMMISSION: On April 12, the Senate received a letter from the Secretary-Treasurer, Atlantic States Marine Fisheries Commission, Mount Vernon, N. Y., transmitting, pursuant to law, a report of that Commission, dated March 1961 (with accompanying report); to the Committee on Interstate and Foreign Commerce.

CATCH TRANSFER AT SEA: H.R. 5929 (Wilson of California), introduced in House Mar. 24, to Committee on Merchant Marine and Fisheries. Identical to a number of bills introduced previously on same subject. Would legalize the transfer of catch of one fishing vessel to another on the high seas and transporting it without charge to a port of the United States.

DEPRESSED AREAS: H.R. 5943 (Widnall), introduced in House Mar. 24; to Committee on Banking and Currency.

On Mar. 27, the House Committee on Rules granted an open rule, waiving points of order, with 3 hours debate on S. 1, to establish an effective program to alleviate conditions of substantial and persistent unemployment and underemployment in certain economically-distressed areas (H. Rept. No. 201). Bill was referred to House Calendar. On Mar. 28, the House by a voice vote adopted H. Res. 237. On Mar. 29, by a vote of 250 yeas to 166 nays the House passed S. 1. Prior to passage a recommital motion designed to replace the text of the bill with the provisions of H.R. 5943 (Widnall), had been rejected by a vote of 125 yeas to 292 nays. Before the committee substitute amendment was adopted, several amendments were added, including one to authorize vocational training for certain seasonal agricultural workers; also one to require

the Secretary of Commerce to study and report to Congress of the impact on the economy where Government installations are deactivated in areas where at least 6-percent unemployment exists.

On Mar. 30 the Senate disagreed to House amendments to S. 1, Area Redevelopment Act of 1961, asked for conference with House and appointed conferees.

On April 12, the House insisted on the House amendments and agreed to the conference asked by the Senate on S. 1.

On April 12, a joint resolution of the Legislature of the State of Wisconsin was received in the Senate, memorializing Congress to pass S. 1, introduced by Sen. Paul H. Douglas of Illinois, or like or similar legislation providing Federal aid for economically-distressed areas of the United States; to Committee on Banking and Currency.

EXEMPT RAILROAD TRANSPORTATION FOR FISH, LIVESTOCK, AND AGRICULTURAL PRODUCTS: H.R. 6247 (Cunningham), introduced in House April 12, a bill to amend the Interstate Commerce Act, as amended, so as to extend to the railroads a conditional exemption from economic regulation comparable to that provided for motor carriers engaged in the transportation of ordinary livestock, fish, or agricultural commodities; to the Committee on Interstate and Foreign Commerce. Identical to H.R. 1823 (Rostenkowski).

FEDERAL BOATING ACT AMENDMENTS: On Mar. 27, the Senate received a letter from the Acting Secretary of the Treasury, transmitting, pursuant to law, copy of amendments to the rules and regulations regarding "Numbering of Undocumented Vessels, Statistics on Numbering and Boating Accident Reports and Accident Statistics," to become effective on June 30, 1961 (with accompanying papers); to Committee on Interstate and Foreign Commerce.

FISH AND WILDLIFE AID THROUGH EQUIPMENT TRANSFER: H.R. 6301 (Gray), introduced in House April 13, a bill to provide that excess personal property of the United States may be donated to the States for the promotion of fish and wildlife management activities, and for other purposes; to the Committee on Government Operations. Identical to H.R. 4724 (Barry).

FISH AND WILDLIFE ASSISTANT SECRETARY: The Senate on Mar. 24, 1961, confirmed the nomination of Frank P. Briggs to be Assistant Secretary for Fish and Wildlife, Department of the Interior.

FOOD ADDITIVES: On Mar. 24, the Senate Committee on Labor and Public Welfare submitted S. Rept. 86 on H.R. 3980, an act to protect the public health by prohibiting the use of food additives which are not adequately tested, without amendment.

S. Rept. No. 86, Food Additives Transitional Provisions Amendment of 1961 (March 24, 1961, 87th Congress, 1st Session, report of the Committee on Labor and Public Welfare to accompany H.R. 3980), 11 pp., printed. Contains letter from Department of Health, Education, and Welfare recommending enactment of H.R. 3980 as it passed the House, additional correspondence explaining the need for the bill, and an explanation of its provisions.

On Mar. 27, the Senate passed H.R. 3980, without amendment, and cleared the bill for signature by the President. On Mar. 28, H.R. 3980 was signed by the President pro tempore of the Senate.

On April 7, the President signed H.R. 3980, to amend the transitional provisions of the Food Additives Amendment Act of 1958 (P. L. 87-19).

This bill would extend, from March 5, 1961, until June 30, 1964, the final effective dates of the Food Additives Amendment of 1958 (P.L. 85-929) and the Nematocide, Plant Regulator, Defoliant, and Desiccant Amendment of 1959 (P.L.86-139). This extension would authorize the continued use of certain food additives and pesticides chemicals not covered by regulations issued by the Secretary of the Department of Health, Education, and Welfare, if the Secretary finds that such continued use would involve no undue risk to the public health, that such additives and pesticide chemicals were in commercial use prior to January 1, 1958, and that scientific investigations to determine safe levels of use are being pursued with due diligence.

Additional time is required by the Food and Drug Administration and the affected industries to complete and evaluate scientific investigations and studies needed to determine final assurance of safe use for about 30 pesticide chemicals and to determine whether some 3,000 substances are actually additives in or on a food and, if they are, what if any tolerance limitations or other conditions should be imposed on their use.

Under the bill, the Secretary of Health, Education, and Welfare could permit the continued use of the food additives or pesticide chemicals which have not been finally cleared for safety only in those instances where he has received satisfactory evidence, and has either authorized or has pending a request for authorization for the continued usage of these chemicals up to March 5, 1961, the limit of this authority, and he finds that the persons requesting the extensions have taken bona fide action before March 6, 1960, to investigate the chemicals concerned, that such investigations have continued with reasonable diligence, and that more time is necessary to complete them.

The Secretary would, at any time, be able to terminate any extension of time granted under this legislation if he finds that (1) it should not have been granted, (2) the basis for an extension no longer exists owing to a change in circumstances, or (3) there has been a failure to comply with any requirement for the submission of progress reports or with other conditions attached to the extension.

FOOD ADDITIVES STUDY COMMISSION: H.R. 6011 (King of Utah), introduced in House on Mar. 28, a bill to establish a commission to conduct an impartial and scientific study and investigation to determine the effects on the public health of the practice of adding various chemicals to food products and beverages; to the Committee on Interstate and Foreign Commerce.

IMPORT COMPETITION ADJUSTMENT: H.R. 6150 (Van Zandt) introduced in House April 10, and H.R. 6280 (Bailey), introduced on April 13, bills to regulate the foreign commerce of the United States by providing for fair competition between domestic industries operating under the Fair Labor Standards Act and foreign industries that supply articles imported into the United States, and for other purposes; to Committee on Ways and Means. Identical to H.R. 6635 (Thomson of Wisconsin).

INCOME TAX REVISION IN FAVOR OF FISHERMEN: H.R. 6413 (King of California), introduced in House on April 18, a bill to extend to fishermen the same treatment accorded farmers in relation to estimated income tax; to the Committee on Ways and Means.

INTERIOR APPROPRIATIONS: Department of the Interior and Related Agencies Appropriations for 1962 (Hearings before a Subcommittee of the Committee on Appropriations, House of Representatives, Eighty-Seventh Congress, First Session, on appropriations for the Department of Interior except Bonneville Power Administration, Bureau of Reclamation, Southeastern Power Administration, and Southwestern Power Administration), 1,482 pp., printed. Includes hearings on operations of the Fish and Wildlife Service and its two Bureaus--total funds registered for the Service for fiscal year 1962--$48,041,000, or $8,063,027 more than in fiscal year 1961.

For the U. S. Fish and Wildlife Service, Office of the Commissioner, the estimate of $364,000 is the same as for 1961.

Bureau of Commercial Fisheries: Estimates for the fiscal year 1962 total $19,339,000. Of this total, $9,296,000 is for management and investigations of resources; $1 million is under the special foreign currency program; $7,561,000 is for construction; $482,000 is for general administrative expenses; and $1 million is for assistance in construction of fishing vessels. An additional $1,981,000, to be derived from the Pribilof Islands fund, is requested for administration of the Pribilof Islands.

Increases totaling $455,000 in the estimate for management and investigations provide $221,000 for program expansion in connection with research on fish migration over dams, $154,000 for operation and maintenance of a new vessel and new shore facilities under construction in the current year, and $80,000 to finance increased pay costs under P.L. 86-568 for a full year.

Funds requested under the special foreign currency program are to finance technological and biological studies in foreign countries, to complement work being performed in these fields in the United States under the management and investigations of resources appropriation.

The estimate of $7,561,000 for construction includes $2,450,000 for a new research laboratory at La Jolla, Calif; $1,775,000 for a research vessel for use in the central Pacific Ocean; $1,250,000 for a vessel to replace the Delaware, an obsolete North Atlantic type trawler constructed in 1938; $200,000 for a research vessel to be used in the Gulf of Mexico; and $455,000 for service facilities and laboratory improvements at Oxford, Md., Boothbay Harbor, Maine, and Auke Bay, Alaska. All this construction involves facilities recommended for the national oceanographic program. Also included in the $7,561,000 estimate is $1,431,000 for Columbia River fishery facilities, a decrease of $566,642 compared to the 1961 comparative transfer for this activity from the Corps of Engineers.

Bureau of Sport Fisheries and Wildlife: The overall estimate for management and investigations of resources is $23,200,000, an increase of $3,947,000 over fiscal year 1961. For the most part this increase will be used to place new fish hatcheries and wildlife refuges under operation and to provide funds needed to maintain the work in general at 1961 levels. Construction estimate is $4,067,000, a reduction of $718,000 when compared with 1961. The estimate includes funds for a new fish hatchery on the Jordan River, Antrim County, Mich., for the purpose of restoring lake trout in the Great Lakes. Funds are also provided for initial work at the Navajo and Vernal units of the Colorado River storage project. General Administrative expenses total $1,071,000 or $55,000 more than in fiscal year 1961. Grand total for Bureau of Sport Fisheries and Wildlife is $28,338,000 or $3,284,000 more than in 1961.

On April 13 the House Committee on Appropriations was granted permission to file by midnight April 14 a report on a bill making appropriations for the Department of the Interior and related agencies for fiscal year 1962.

H.R. 6345 (Kirwin) was reported out of committee on April 14 (H. Rept. No. 233).

The appropriations include funds for the Fish and Wildlife Service, Office of the Commissioner. The Committee recommends the budget estimate of $364,000, the same as the amount available for the current fiscal year.

For the Bureau of Commercial Fisheries, Management and Investigations of Resources, the Committee recommended $11,700,000 an increase of $3,774,000 in the 1961 appropriation and a decrease of $96,000 in the budget estimate. On an available funds basis, the increase over the current year is only $1,769,669 due to the transfer in the estimates to this item of $2,004,331 for the operation and maintenance costs of Columbia River fishery facilities heretofore appropriated for under the Corps of Engineers. Increases allowed include $1,000,000 for additional work in the field of oceanography; $500,000 for continuation of emergency research program for Alaska salmon; $131,000 for operation of the new facilities being constructed in 1961; $221,000 for expansion of the research program on fish migration over dams, and $23,000 for operation of the new exploratory fishing vessel being constructed in 1961.

The amount allowed reflects a decrease of $89,331 in the level of the Columbia River fishery facilities program, and Committee reductions of $96,000 consisting of disallowance of the request of $80,000 to restore that portion of the pay act cost being absorbed during the current year, and $16,000 to round off the estimate.

The Committee recommends $300,000, a reduction of $700,000 in the budget request, to initiate a new research program to be conducted in foreign countries with foreign currencies.

The Committee has approved the budget request of $7,561,000 for construction, an increase of $5,161,000 in the 1961 appropriation. Actual increase provided over 1961 is $3,730,000 due to the transfer in the estimates to this item of $1,431,000 for the construction of the Columbia River fisheries facilities heretofore appropriated to the Corps of Engineers. The amount provided includes: $1,775,000 for the construction of an oceanic research vessel for the Central Pacific Ocean; $1,240,000 for construction of an experimental fishing vessel for use in the North Atlantic as a replacement for the Delaware; $200,000 for the construction of a research vessel for use of the Galveston laboratory in the Gulf of Mexico; $2,450,000 for construction of a biological research laboratory at La Jolla, California; $170,000 for additional construction at the Oxford,

Maryland, laboratory; $85,000 for improvements at Boothbay Harbor, Maine, laboratory; and $200,000 for additional facilities at the Auke Bay, Alaska, laboratory.

For subsidies for the construction of fishing vessels, the Committee has allowed an appropriation of $750,000, the same as the appropriation for the current year, and a decrease of $250,000 in the budget estimate.

For general administrative expenses the Committee has allowed the budget request of $482,000, an increase of $97,000 in the 1961 appropriation.

For administration of Pribilof Islands, the Committee recommends the budget request of $1,981,000, a decrease of $89,000 in the amount provided for the current fiscal year.

For the Bureau of Sport Fisheries and Wildlife, Management and Investigations of Resources, the Committee recommends an appropriation of $23,000,000, an increase of $3,692,000 in the 1961 appropriation, and a decrease of $200,000 in the budget request. Increases included $554,100 for operation of new hatchery facilities and for more adequate equipment replacement; $253,400 for additional fishery research.

For construction the Committee recommends an appropriation of $3,770,000, a decrease of $1,365,000 in the 1961 appropriation, and a decrease of $297,000 in the budget estimate.

For general administrative expenses the Committee recommends an appropriation of $1,016,000, the same as the amount available for the current fiscal year, and a reduction of $55,000 in the budget request.

On April 18 the House, by a voice vote, passed H.R. 6345. Appropriations for commercial and sport fisheries and wildlife amount to $48.9 million, an increase of $8.2 million for additional research in oceanography, salmon, and wildlife, construction of research vessels and laboratories, and cooperation and maintenance of hatcheries and wildlife refuges. Included are funds to initiate a new research program to be conducted in foreign countries with foreign currencies--$300,000, a reduction from $1 million requested. These funds are to be used for: (1) a study to determine the nature and causes of the denaturation of protein in frozen fish--study to be made in Israel; (2) a study to measure nutritional contributions of fishery products to the well-being of humans and animals--the study to be made in India; (3) a study of "at-sea processing or freezing of ocean perch" aboard factory trawlers in the North Atlantic--the study made by a Polish university. Further, a sum of $650,000 was requested for radioisotope studies--in India--also a biometrics research program in India, a Pakistan study of shrimp physiology, an Egyptian study of "food chain studies in fresh-water lakes," and an Israeli study of fish behavior and physiology--sardine.

MINIMUM-WAGE LEGISLATION: Amendments to the Fair Labor Standards Act (Hearings before the Subcommittee on Labor of the Committee on Labor and Public Welfare, United States Senate, Eighty-Seventh Congress, First Session on S. 256, S. 879, S. 895, bills amending the Fair Labor Standards Act of 1938, as amended, Feb. 28, Mar. 1, 2, 3, and 6, 1961), 759 pp., printed. Contains statements of various Government officials, union officials, and business officials. Of interest to the fisheries are statements of the Chairman, Legislative Committee, National Fisheries Institute, Inc.; National Canners Association; and the Oyster Institute of North America.

On Mar. 27, the Senate read twice by its title the bill passed by the House on Mar. 24, H.R. 3225, to amend the Fair Labor Standards Act of 1938, as amended, to provide coverage for employees of large enterprises engaged in retail trade or service and of other employers engaged in commerce or in the production of goods for commerce, to increase the minimum wage, and for other purposes; referred to Committee on Labor and Public Welfare.

S. 1457 (McNamara), introduced in Senate Mar. 28; to the Committee on Labor and Public Welfare. Bill contains basic provisions of the administration measure introduced earlier.

On April 11, the Senate Committee on Labor and Public Welfare in executive session, ordered favorably reported with an amendment in the nature of a substitute, H.R. 3935. As approved by the committee, the bill would (1) extend minimum wage coverage to approximately 4.1 million workers, the majority of whom are in the retail trades and services, (2) adopt the $1.25 minimum wage, which amount would be reached in 28 months for presently-covered workers, the latter of whom would be given overtime protection, reaching the 40-hour maximum workweek in 52 months (until these points are reached $1.15 minimum wage would be in effect), and (3) adopt the so-called "inflow" test, which means that retail and service enterprises would be covered by the bill, only if they met the following test: (a) the employer must be engaged in commerce or the production of goods for commerce, (b) the employer must receive $250,000 worth of goods for resale, which have moved across state lines (so-called "inflow" test), and (c) the employer must have an annual gross volume of sale of not less than $1 million, exclusive of excise taxes at the retail level.

Would not affect the existing year-round overtime exemption for fish canners. It would, however, place onshore fish processing (other than canning) under the minimum wage. Thus, fish canning and fish processing would be placed on the same basis--both subject to minimum wage provisions; both exempt from overtime pay requirements. The exemption for offshore fishery activities would still be retained: "(5) any employee employed in the catching, taking, propagating, harvesting, cultivating, or farming of any kind of fish, shellfish, crustacea, sponges, seaweeds, or other aquatic forms of animal and vegetable life, or in the first processing, canning or packing such marine products at sea as an incident to, or in conjunction with, such fishing operations, including the going to and returning from work and loading and unloading when performed by any such employee."

On April 12, bill was reported by Committee (S. Rept. No. 145) to the Senate.

The Committee report which accompanied the Senate bill contained the following language, which is identical to that in last year's Senate report:

"The present exemptions in sections 13(a)(15) and 13(b)(4) have been judicially interpreted to apply to all employees employed in the seafood industry including any employee who participates in activities which are necessary to the conduct of the operations specifically

described in the exemptions (McComb v. Consolidated Fisheries Company, 174 F. 2nd 74, C.A. 3, 1949). These interpretations are consistent with the congressional purpose of treating all employees of one establishment in the same manner under the act and of avoiding segmentation as between different employees of the same employer engaged in the named operations.

"For the same reasons, there was included in section 13(a)(5) as amended by the bill an exemption for the 'first processing, canning, or packing' of marine products 'at sea as an incident to or in conjunction with such fishing operations.' The purpose of this additional provision is to make certain that the act will be uniformly applicable to all employees on the fishing vessel including those employees on the vessel who may be engaged in these activities at sea as an incident to the fishing operations conducted by the vessel."

S. Rept. No. 145, Fair Labor Standards Amendments of 1961 (87th Congress, 1st Session, United States Senate, Report of Committee on Labor and Public Welfare to accompany H.R. 3935), 111 pp., printed. Contains history of legislation, committee objections of House-passed bill, summary of major provisions of committee bill including changes in exemptions--which concern seafood processing in that the bill covers for minimum wage, but not for overtime, employees engaged in onshore seafood processing. Also contains minority views.

On April 13 the Senate took up and considered H.R. 3935. Pending at adjournment was Dirksen amendment, identical with House-passed bill of $1.15 minimum wage, except for $1.05 minimum wage for newly covered employees instead of $1 in House-passed bill.

On April 14 the Senate continued consideration of H.R. 3935, reaching unanimous-consent agreement that effective April 18 debate on any amendment, motion, or appeal (except motion to table) shall be limited to one hour, equally divided; no nongermane amendment may be received; and on question of final passage, debate shall be limited to 4 hours, equally divided.

In addition to limiting further debate on the bill, Senate adopted Cooper amendment to eliminate language in committee amendment that would reduce to 10 weeks the overtime payments exemption in industries engaged in certain food and agricultural processing. The Committee bill would remove from exemption the onshore activities (fish processing, other than canning) and leave exemption applicable to offshore activities connected with procurement of the aquatic products. Pending at adjournment was Dirksen amendment (in nature of a substitute for committee substitute), similar to bill as it passed House. Dirksen amendment would retain the exemptions for onshore fish processing (other than fish canning) as in the House-passed bill.

On April 18 the Senate continued consideration of H.R. 3935, taking several actions on amendments to committee amendment (in nature of a substitute), none of which pertained directly to fisheries.

NATIONAL AQUARIUM IN DISTRICT OF COLUMBIA: H.R. 5990 (Olsen), introduced in House on Mar. 28, a bill to authorize the Secretary of the Interior to construct a national aquarium in the District of Columbia; to the Committee on the District of Columbia.

NATIONAL SCIENCE ACADEMY: On Mar. 28, Subcommittee No. 3 of the House Committee on Science and Astronautics began hearings on H.R. 1, to establish a National Science Academy. Witnesses from the National Science Foundation, and various other public witnesses were heard. On March 29, hearings were concluded.

H.R. 6138 (Monagan), introduced in House April 10, a bill to provide for the establishment, under the National Science Foundation, of a National Science Academy; to the Committee on Science and Astronautics.

NATIONAL OCEANOGRAPHIC PROGRAM: On Mar. 29, a communication from the President of the United States, relating to a proposed national oceanographic program (with accompanying papers), was received in the Senate; to Committee on Interstate and Foreign Commerce. Also, the same message (No. 734) was received in the House; referred to the Committee on Merchant Marine and Fisheries.

NATURAL RESOURCES CONSERVATION: On April 13 the Senate Committee on Interior and Insular Affairs held and concluded hearings on S. 239 and S. 1415, proposed Resources and Conservation Act of 1961, after receiving testimony of various Senators, and other Government witnesses. Bills would declare a national policy on conservation, development, and utilization of natural resources.

NEW BEDFORD-MADE FISH FLOUR: On April 18, the Senate received a resolution of the city council of New Bedford, Mass., seeking approval for the marketing of New Bedford-made fish flour from the Food and Drug Administration; referred to Committee on Agriculture and Forestry.

OCEANOGRAPHIC RESEARCH: H. Res. 242 (Keith), H. Res. 245 (Morse), H. Res. 246 (Tupper), H. Res. 247 (Philbin), introduced in House Mar. 28, resolution expressing the sense of the House of Representatives with respect to the expansion of oceanographic research; to the Committee on Merchant Marine and Fisheries.

OUTDOOR RECREATION RESOURCES REVIEW COMMISSION: On Mar. 29 the President signed S. 449 extending until Jan. 31, 1962, the time within which the Outdoor Recreation Resources Review Commission shall submit its final report (P. L. 87-13). Provides that Commission by date specified shall present a report of its review, a compilation of its data, and its recommendations on a State by State, region by region, and national basis to the President and Congress. Commission will cease to exist after September 1, 1962.

SALTONSTALL-KENNEDY ACT FUNDS REAPPORTIONMENT: H.R. 6130 (Johnson of Calif.), introduced in House April 10; H.R. 6252 (Garmatz) and H.R. 6259 (Multer), introduced in House April 12; bills to amend the act of August 11, 1939, relating to domestically-produced fishery products to establish a fund for the advancement of commercial fisheries; to the Committee on Merchant Marine and Fisheries. Identical to H.R. 5301 (Rivers). Would allocate funds to State agencies having immediate responsibility for management of commercial fishery resources, for fisheries research and development.

SHRIMP IMPORT DUTIES: H.R. 6168 (Boggs) and H.R. 6212 (Willis), introduced in House April 11; H.R. 6294 (Fascell), introduced in House April 13; H.R. 6424 (Rivers of Alaska), introduced in House April 18; bills to amend the Tariff Act of 1930 to impose a duty on shrimp and to provide for duty free entry of unproc-

essed shrimp annually in an amount equal to imports of shrimp in 1960; to the Committee on Ways and Means. Also, S. 1571 (Long, Smathers, Talmadge, Bartlett), introduced in Senate April 13; to the Committee on Finance; similar to H.R. 6168. Would allow the duty-free entry of raw headless shrimp up to an amount equal to 1960 imports, and would impose a duty of 35 percent, or 35 cents per pound whichever is higher, on all imports of processed shrimp as well as on imports of raw headless in excess of the 1960 imports.

SMALL BUSINESS: S. Rept. No. 89, Small Business Exports and the World Market (87th Congress, 1st Session, United States Senate, Report of the Select Committee on Small Business on Encouragement and Expansion of Exports by Small Business, March 27, 1951), 45 pp., printed. Contains the facts today on U.S. exports, what Government agencies are doing, areas for new progress (recommendations), miscellaneous signs of progress, summary of recommendations, 3 exhibits, and 5 appendices.

SPORT FISH STUDY: S. 1524 (McGee and Hickey), introduced in Senate on April 12, a bill to authorize and direct the Secretary of the Interior to conduct studies of the genetics of sport fishes and to carry out selective breeding of such fishes to develop strains with inherent attributes valuable in programs of research, fish hatchery production, and management of recreational fishery resources; to the Committee on Interstate and Foreign Commerce.

SUBMERGED LANDS ACT AMENDMENTS: S. 1400 (Long of La., and Ellender), introduced in Senate March 21; to Committee on Interior and Insular Affairs. Also H.R. 5792 (Boggs), H.R. 5793 (Colmer), H.R. 5794 (McSween), H.R. 5795 (Hebert), H.R. 5796 (Morrison), H.R. 5797 (Passman), H.R. 5798 (Thompson of La.), H.R. 5799 (Willis), introduced in House March 21, to the Committee on the Judiciary. Bills to amend the Submerged Lands Act to establish the seaward boundaries of the States of Alabama, Mississippi, and Louisiana as extending 3 marine leagues into the Gulf of Mexico and providing for the ownership and use of the submerged lands, improvements, minerals, and natural resources within said boundaries.

Congressman Willis in the March 21 Congressional Record reviewed the whole controversy on submerged lands jurisdiction from the time of decision of the Supreme Court in the California case in 1947 to the time of the Court's decision of May 1960.

SUPPLEMENTAL APPROPRIATIONS: Third Supplemental Appropriation Bill for 1961 (Hearings before the Committee on Appropriations, United States Senate, Eighty-Seventh Congress, First Session, on H.R. 5188, an act making supplemental appropriations for the fiscal year ending June 30, 1961, and for other purposes), 762 pp., printed. Contains, among others, for the Bureau of Sport Fisheries and Wildlife estimates of supplemental appropriations to cover hurricane damage and pay raises. No statement presented on Bureau of Commercial Fisheries supplemental appropriations.

On Mar. 24, the Senate Committee on Appropriations submitted S. Rept. 85 on H.R. 5188, an act making supplemental appropriations for fiscal year ending June 30, 1961. H.R. 5188 passed Senate, amended, on March 27 and on the same date Senate asked for a conference.

On Mar. 28, the Senate received a message from the House announcing that the House had disagreed to the amendments of the Senate on H. R. 5188. House agreed to the conference asked by the Senate on the disagreeing votes of the two Houses, and appointed conferees.

On Mar. 29, the Committee on Conference agreed to file a report on the differences between the House- and Senate-passed versions of H.R. 5188, and submitted its report (H. Rept. No. 211) to the House. On Mar. 29 by a voice vote the House adopted the conference report on H.R. 5188, and sent the legislation to the Senate. The Senate began consideration of conference report. Two of the amendments considered in Conference were: Amendment No. 45--Fish and Wildlife Service, Bureau of Sport Fisheries and Wildlife: Appropriates $350,000 for construction as proposed by Senate instead of $200,000 as proposed by House; and Amendment No. 46--Fish and Wildlife Service, Bureau of Commercial Fisheries: Appropriates an additional $1,000,000 as proposed by the Senate for North Pacific salmon fisheries research.

On Mar. 30 the Senate adopted conference report and cleared for President H.R. 5188, third supplemental appropriations for fiscal year 1961. Includes additional funds for Bureau of Commercial Fisheries: $1 million for North Pacific salmon fisheries research (S. Doc. 18) and funds for pay-raise costs. Also additional funds for Bureau of Sport Fisheries and Wildlife for construction, other expenses under management and investigation of resources, and pay-raise costs. For State Department, an additional $21,000 is included for international fisheries commissions to cover increased pay costs.

On Mar. 30, the Senate's President pro tempore signed H.R. 5188, which had previously been signed by the Speaker of the House of Representatives.

On Mar. 31 H.R. 5188, an act making supplemental appropriations for the fiscal year ending June 30, 1961, and for other purposes was signed by the President (P.L. 87-14).

Both the Senate and House gave $663,000 to the Bureau of Sport Fisheries and Wildlife for management and investigation of resources--$55,000 for costs of fire suppression and storm damage on wildlife refuges, and $608,000 for increased pay costs. The Bureau also gained $350,000 from the Senate for construction, $150,000 more than the House allowed, and the difference is intended for a trout hatchery at Wytheville, Va. The Bureau of Commercial Fisheries was granted $1,000,000 by the Senate for an emergency research program for Alaska salmon, an amount not in the bill as passed by the House. The Senate also added $350,000 to the U.S. Army Corps of Engineers for construction of the Libby Dam in Montana as part of the recently-approved Columbia River Treaty, a new item not in the House-passed version of H.R. 5188. In addition, for increased pay costs: $22,000 Office of the Commissioner of Fish and Wildlife; $66,000 Bureau of Sport Fisheries and Wildlife; and $288,000 Bureau of Commercial Fisheries.

TARIFF NEGOTIATIONS: H. Con. Res. 213 (Baker), submitted on April 10, a concurrent resolution declaring the sense of the Congress that no further reductions in tariffs be made during the life of the present Reciprocal Trade Agreements Act; to the Committee on Ways and Means.

WATER POLLUTION CONTROL: H.R. 5927 (Perkins), introduced in House Mar. 24, a bill to amend Federal Water Pollution Control Act; to Committee on Public Works.

On Mar. 29, the House Committee on Public Works concluded hearings on H.R. 4036, and related bills, to amend the Federal Water Pollution Control Act. The Secretary of Health, Education, and Welfare, testified on the measure.

On April 11 and 12, the House Committee on Public Works met in executive session to consider H.R. 4036, Water Pollution Control Act Amendments of 1961. No announcements were made; the committee continued on this subject, in executive session, April 13.

On April 13 the House Committee on Public Works continued executive consideration of H.R. 4036. The Committee continued on this subject, in executive session, April 18. On that date Committee ordered a revised version of H.R. 4036 reported to House.

H.R. 6441 (Blatnik), and H.R. 6446 (Halpern) introduced in House April 18, bills to amend the Federal Water Pollution Control Act to provide for a more effective program of water pollution control; to the Committee on Public Works. Similar to 27 other bills introduced in both Houses. H.R. 6441, a revised version of H.R. 4036, makes strengthening changes in the Federal Water Pollution Control Act of 1956 (P.L. 660). Would provide financial assistance to communities, Federal law enforcement, research, State program grants, and a change in the status of the program.

WATER POLLUTION CONTROL RESEARCH LABORATORY: On April 10, a joint resolution of the 51st Legislature of the State of Oregon was received in Senate urging the President and Congress to pass legislation authorizing the establishment of a Pacific Northwest Pollution Control Laboratory, which would conduct research for the treatment of water, waste waters, atmospheric contaminants, and control of water pollution; to Committee on Public Works. On April 11, the same memorial was received in the House; to Committee on Interstate and Foreign Commerce.

WATER RESOURCES PLANNING ACT OF 1961: S. 1629 (Anderson, et al), introduced in the Senate April 14, 1961, a bill to provide financial assistance to the states for comprehensive water resources planning; to the Committee on Interior and Insular Affairs.

WORLD TRADE: Committee Print, The United States and World Trade, Challenges and Opportunities (87th Congress, 1st Session, Final report to the Committee on Interstate and Foreign Commerce, United States Senate, by special staff on the Study of U. S. Foreign Commerce, March 14, 1961), 335 pp., printed. This report presents results of a special staff study of the foreign commerce of the United States, the domestic and international forces affecting it, and the policies under which it is carried on. Contains 2 parts: Part I--World Trade: the challenge to U. S. policy, and Part II--Essentials of a modern trade policy; two appendices, 45 tables, and 6 charts.

ARTIFICIAL REEFS PROVE SUCCESSFUL

Two reports show encouraging results on artificial ocean reefs.

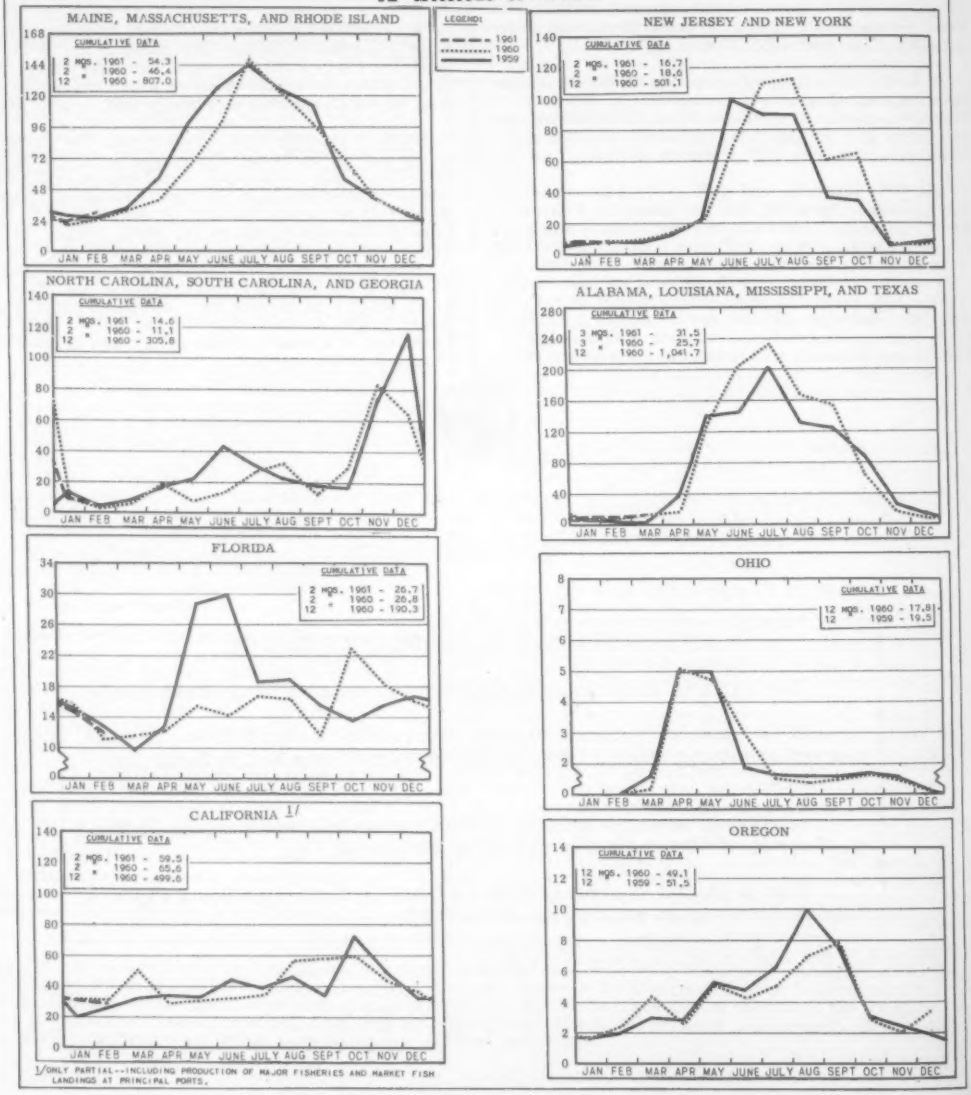
In California, within a month, several thousand fish were observed schooling around three artificial reefs installed in Santa Monica Bay.

In Hawaii several species of fish were observed moving in on a reef made of 43 car bodies placed in Maunalua Bay.

Also in Hawaii, a creel census on Oahu indicated $\frac{1}{2}$ million anglers fished a total of 14 million hours in 1959.

CHART 1 - FISHERY LANDINGS for SELECTED STATES

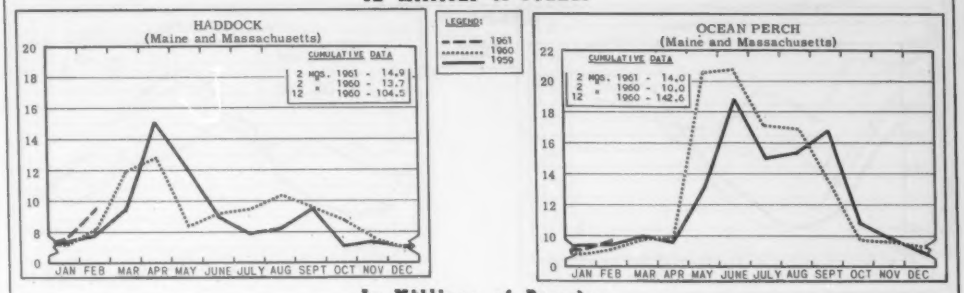
In Millions of Pounds



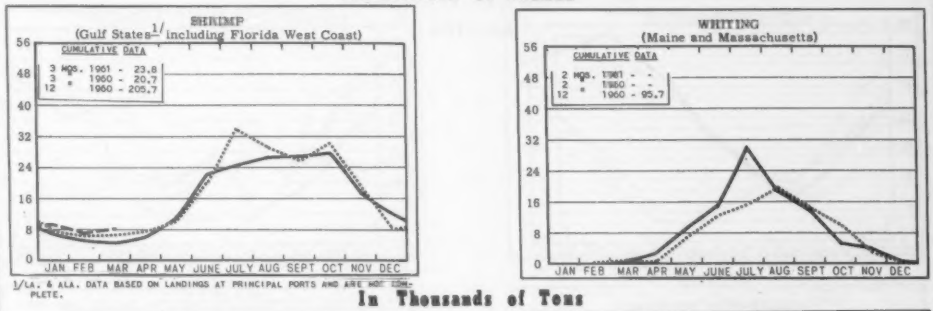
1/ONLY PARTIAL--INCLUDING PRODUCTION OF MAJOR FISHERIES AND MARKET FISH LANDINGS AT PRINCIPAL PORTS.

CHART 2 - LANDINGS for SELECTED FISHERIES

In Millions of Pounds

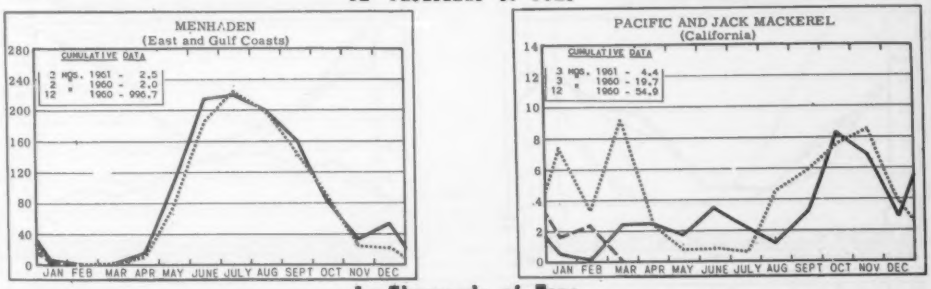


In Millions of Pounds


SHRIMP
(Gulf States 1/ including Florida West Coast)
CUMULATIVE DATA
3 MOS. 1961 - 23.8
3 " 1960 - 20.7
12 " 1960 - 205.7
WHITING
(Maine and Massachusetts)
CUMULATIVE DATA
2 MOS. 1961 - -
2 " 1960 - -
12 " 1960 - 95.7
JAN FEB MAR APR MAY JUNE JULY AUG SEPT OCT NOV DEC

1/ LA. & ALA. DATA BASED ON LANDINGS AT PRINCIPAL PORTS AND ARE NOT COMPLETE.

In Thousands of Tons


MENHADEN
(East and Gulf Coasts)
CUMULATIVE DATA
2 MOS. 1961 - 2.5
2 " 1960 - 2.0
12 " 1960 - 996.7
PACIFIC AND JACK MACKEREL
(California)
CUMULATIVE DATA
3 MOS. 1961 - 4.4
3 " 1960 - 19.7
12 " 1960 - 54.9
JAN FEB MAR APR MAY JUNE JULY AUG SEPT OCT NOV DEC

In Thousands of Tons

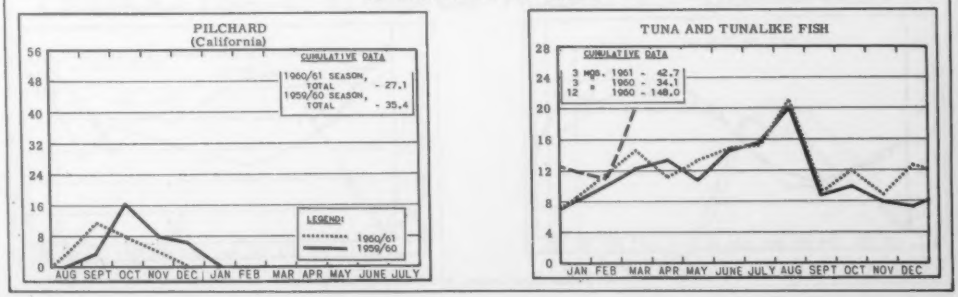
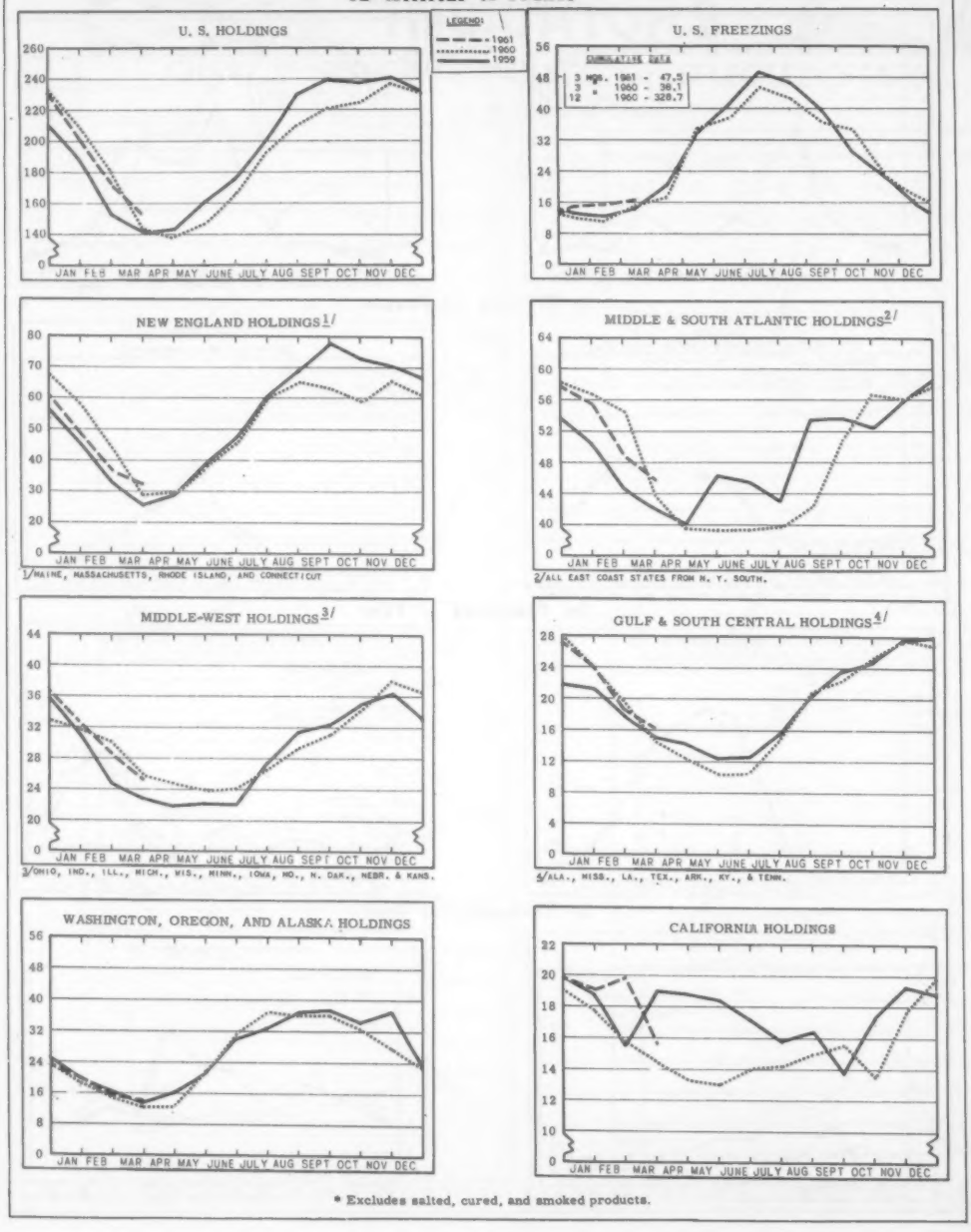

PILCHARD
(California)
CUMULATIVE DATA
1960/61 SEASON, TOTAL - 27.1
1959/60 SEASON, TOTAL - 35.4
LEGEND:
1960/61
1959/60
AUG SEPT OCT NOV DEC JAN FEB MAR APR MAY JUNE JULY
TUNA AND TUNALIKE FISH
CUMULATIVE DATA
3 MOS. 1961 - 42.7
3 " 1960 - 34.1
12 " 1960 - 148.0
JAN FEB MAR APR MAY JUNE JULY AUG SEPT OCT NOV DEC

CHART 3 - COLD-STORAGE HOLDINGS and FREEZINGS of FISHERY PRODUCTS *

In Millions of Pounds



1/ MAINE, MASSACHUSETTS, RHODE ISLAND, AND CONNECTICUT

2/ ALL EAST COAST STATES FROM N. Y. SOUTH.

3/ OHIO, IND., ILL., MICH., WIS., MINN., IOWA, MO., N. DAK., NEBR. & KANS.

4/ ALA., MISS., LA., TEX., ARK., KY., & TENN.

* Excludes salted, cured, and smoked products.

CHART 4 - RECEIPTS and COLD-STORAGE HOLDINGS of FISHERY PRODUCTS at PRINCIPAL DISTRIBUTION CENTERS

In Millions of Pounds

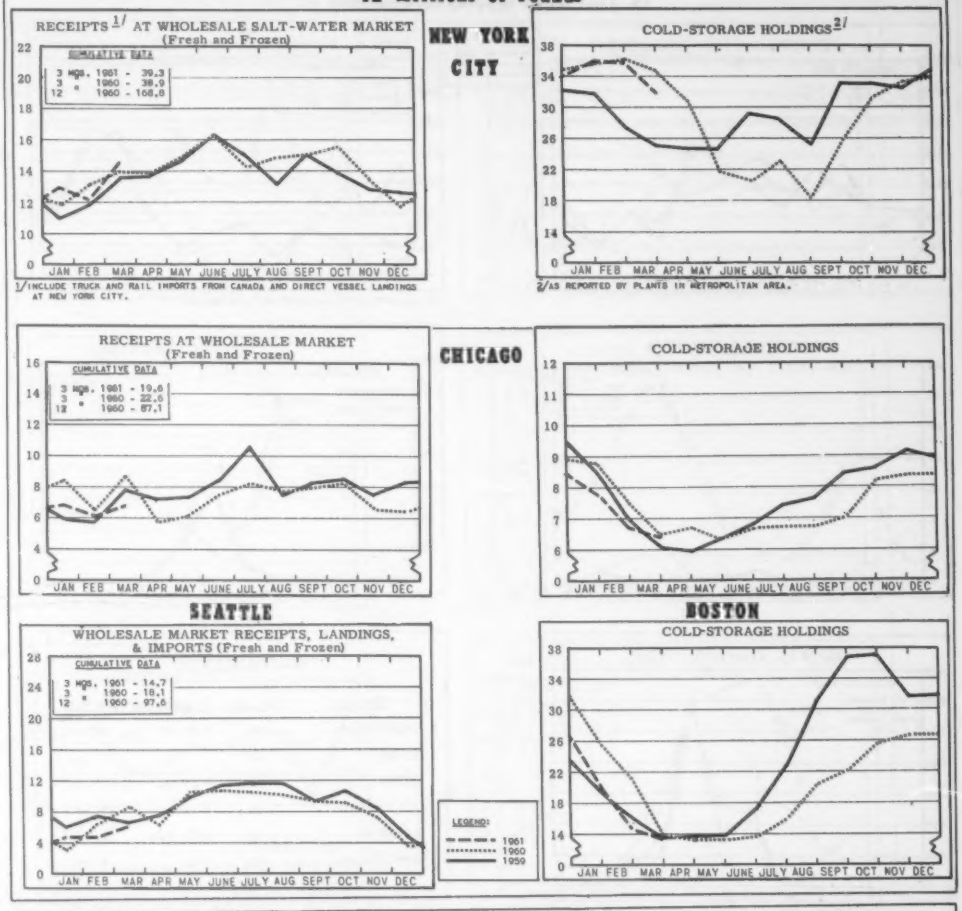

NEW YORK CITY
RECEIPTS 1/ AT WHOLESALE SALT-WATER MARKET (Fresh and Frozen)
CUMULATIVE DATA
3 MOS. 1961 - 39.3
3 " 1960 - 38.9
12 " 1960 - 168.8
COLD-STORAGE HOLDINGS 2/
1/INCLUDE TRUCK AND RAIL IMPORTS FROM CANADA AND DIRECT VESSEL LANDINGS AT NEW YORK CITY.
2/AS REPORTED BY PLANTS IN METROPOLITAN AREA.
CHICAGO
RECEIPTS AT WHOLESALE MARKET (Fresh and Frozen)
CUMULATIVE DATA
3 MOS. 1961 - 19.6
3 " 1960 - 22.6
12 " 1960 - 97.1
COLD-STORAGE HOLDINGS
SEATTLE
WHOLESALE MARKET RECEIPTS, LANDINGS, & IMPORTS (Fresh and Frozen)
CUMULATIVE DATA
3 MOS. 1961 - 14.7
3 " 1960 - 18.1
12 " 1960 - 97.6
BOSTON
COLD-STORAGE HOLDINGS
LEGEND:
1961
1960
1959
JAN FEB MAR APR MAY JUNE JULY AUG SEPT OCT NOV DEC

CHART 5 - FISH MEAL and OIL PRODUCTION - U.S and ALASKA

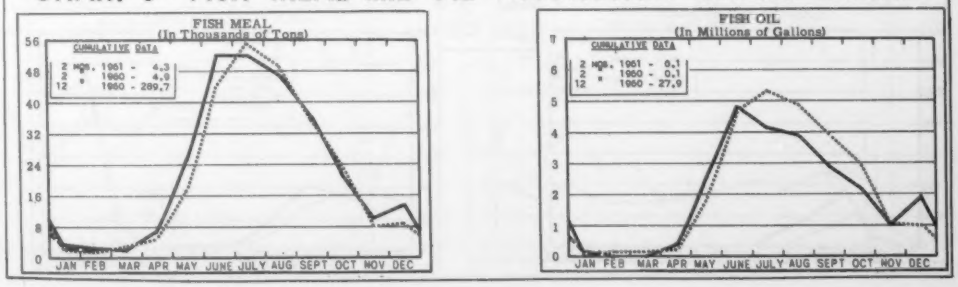
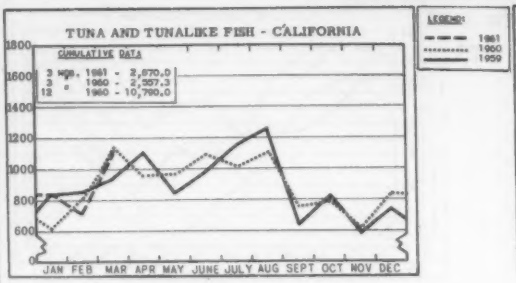
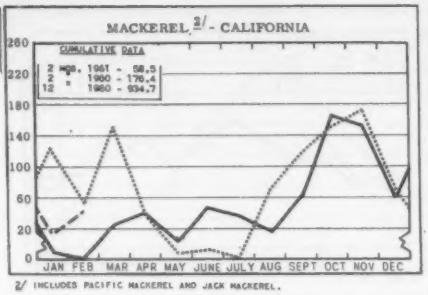

FISH MEAL (In Thousands of Tons)
CUMULATIVE DATA
2 MOS. 1961 - 4.3
2 " 1960 - 4.9
12 " 1960 - 289.7
FISH OIL (In Millions of Gallons)
CUMULATIVE DATA
2 MOS. 1961 - 0.1
2 " 1960 - 0.1
12 " 1960 - 27.9
JAN FEB MAR APR MAY JUNE JULY AUG SEPT OCT NOV DEC

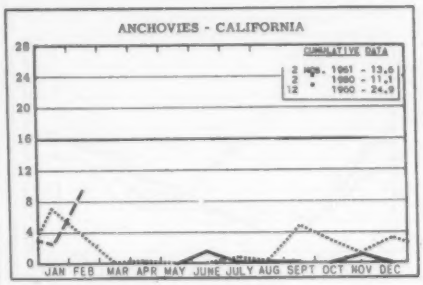
CHART 6 - CANNED PACKS of SELECTED FISHERY PRODUCTS

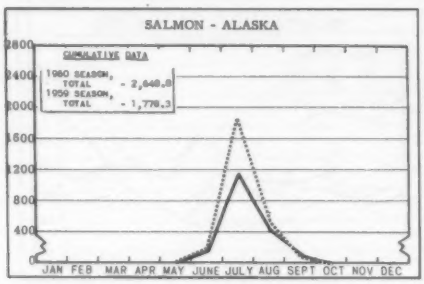
In Thousands of Standard Cases

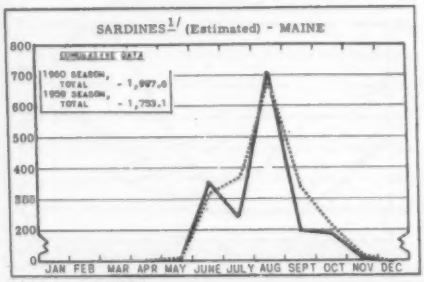



MACKEREL 2/ - CALIFORNIA
CUMULATIVE DATA
2 wks. 1961 - 58.5
2 " 1960 - 176.4
12 " 1960 - 934.7
JAN FEB MAR APR MAY JUNE JULY AUG SEPT OCT NOV DEC

2/ INCLUDES PACIFIC MACKEREL AND JACK MACKEREL.


ANCHOVIES - CALIFORNIA
CUMULATIVE DATA
2 wks. 1961 - 13.6
2 " 1960 - 11.1
12 " 1960 - 24.9
JAN FEB MAR APR MAY JUNE JULY AUG SEPT OCT NOV DEC

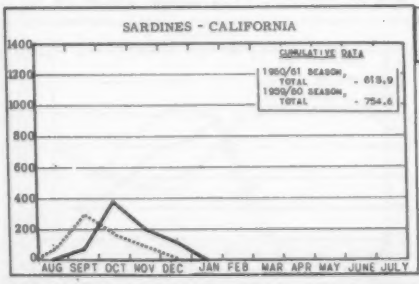

SALMON - ALASKA
CUMULATIVE DATA
1960 SEASON, TOTAL - 2,648.8
1959 SEASON, TOTAL - 1,778.3
JAN FEB MAR APR MAY JUNE JULY AUG SEPT OCT NOV DEC


SARDINES 1/ (Estimated) - MAINE
CUMULATIVE DATA
1960 SEASON, TOTAL - 1,997.6
1959 SEASON, TOTAL - 1,753.1
JAN FEB MAR APR MAY JUNE JULY AUG SEPT OCT NOV DEC

1/ INCLUDING SEA HERRING.

STANDARD CASES

Variety	No. Cans	Designation	Net Wgt.
SARDINES.....	100	¼ drawn	3¾ oz.
SHRIMP.....	48	--	5 oz.
TUNA.....	48	# ½ tuna	6 & 7 oz.
PILCHARDS...	48	# 1 oval	15 oz.
SALMON.....	48	1-lb. tall	16 oz.
ANCHOVIES...	48	½-lb.	8 oz.



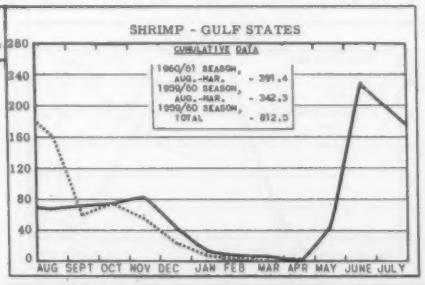
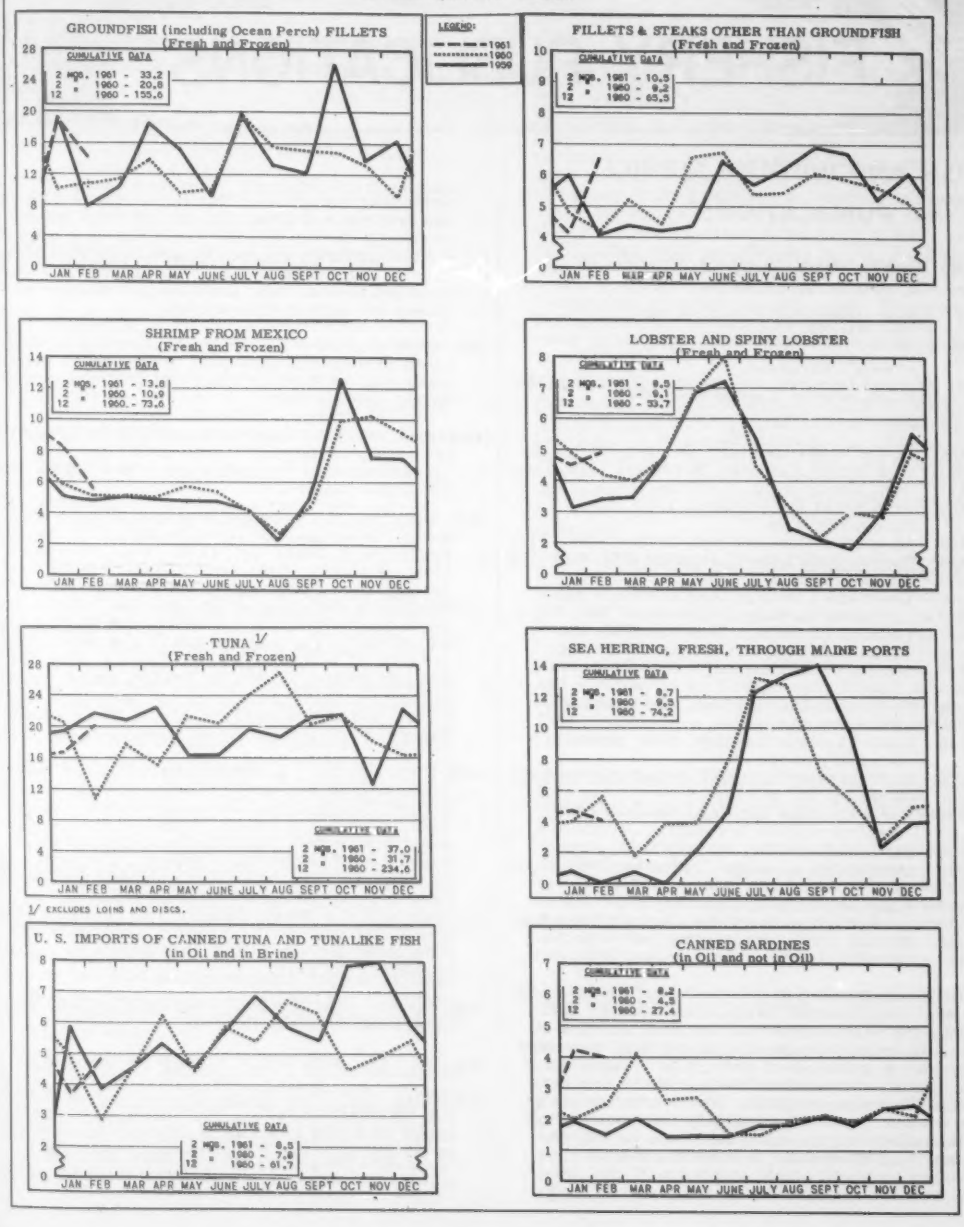
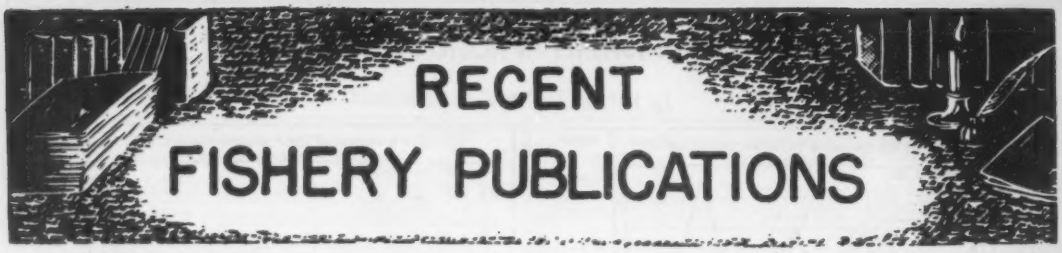

SHRIMP - GULF STATES
CUMULATIVE DATA
1960/61 SEASON, AUG.-MAR. - 291.4
1959/60 SEASON, AUG.-MAR. - 342.3
1959/60 SEASON, TOTAL - 812.5
AUG SEPT OCT NOV DEC JAN FEB MAR APR MAY JUNE JULY

CHART 7 - U.S. FISHERY PRODUCTS IMPORTS

In Millions of Pounds


GROUNDFISH (including Ocean Perch) FILLETS
(Fresh and Frozen)
CUMULATIVE DATA
2 MOS. 1961 - 33.2
2 " 1960 - 20.8
12 " 1960 - 155.6
LEGEND:
1961
1960
1959
FILLETS & STEAKS OTHER THAN GROUNDFISH
(Fresh and Frozen)
CUMULATIVE DATA
2 MOS. 1961 - 10.5
2 " 1960 - 9.2
12 " 1960 - 65.5
SHRIMP FROM MEXICO
(Fresh and Frozen)
CUMULATIVE DATA
2 MOS. 1961 - 13.8
2 " 1960 - 10.9
12 " 1960 - 73.6
LOBSTER AND SPINY LOBSTER
(Fresh and Frozen)
CUMULATIVE DATA
2 MOS. 1961 - 8.5
2 " 1960 - 9.1
12 " 1960 - 33.7
TUNA 1/
(Fresh and Frozen)
CUMULATIVE DATA
2 MOS. 1961 - 37.0
2 " 1960 - 31.7
12 " 1960 - 234.6
SEA HERRING, FRESH, THROUGH MAINE PORTS
CUMULATIVE DATA
2 MOS. 1961 - 8.7
2 " 1960 - 9.5
12 " 1960 - 74.2
U. S. IMPORTS OF CANNED TUNA AND TUNALIKE FISH
(in Oil and in Brine)
CUMULATIVE DATA
2 MOS. 1961 - 8.5
2 " 1960 - 7.8
12 " 1960 - 61.7
CANNED SARDINES
(in Oil and not in Oil)
CUMULATIVE DATA
2 MOS. 1961 - 8.2
2 " 1960 - 4.5
12 " 1960 - 27.4
JAN FEB MAR APR MAY JUNE JULY AUG SEPT OCT NOV DEC

1/ EXCLUDES LOINS AND DISCS.



FISH AND WILDLIFE SERVICE PUBLICATIONS

THESE PROCESSED PUBLICATIONS ARE AVAILABLE FREE FROM THE DIVISION OF INFORMATION, U. S. FISH AND WILDLIFE SERVICE, WASHINGTON 25, D. C. TYPES OF PUBLICATIONS ARE DESIGNATED AS FOLLOWS:

CFS - CURRENT FISHERY STATISTICS OF THE UNITED STATES.
FL - FISHERY LEAFLETS.
MNL - REPRINTS OF REPORTS ON FOREIGN FISHERIES.
SSR.- FISH. - SPECIAL SCIENTIFIC REPORTS--FISHERIES (LIMITED DISTRIBUTION).
SEP.- SEPARATES (REPRINTS) FROM COMMERCIAL FISHERIES REVIEW.
TL - TECHNICAL REPORT ON A SPECIFIC SUBJECT.

Number Title

CFS-2464 - Rhode Island Landings, October 1960, 3 pp.
CFS-2467 - New Jersey Landings, November 1960, 3 pp.
CFS-2471 - Fish Meal and Oil, November 1960, 2 pp.
CFS-2482 - Fish Sticks and Portions, 1960 Annual Summary, 3 pp.
CFS-2485 - Massachusetts Landings, October 1960, 6 pp.
CFS-2497 - Frozen Fish Report, January 1961, 8 pp.
CFS-2506 - Maine Landings, December 1960, 3 pp.
CFS-2507 - Louisiana Landings, August 1960, 2 pp.
CFS-2508 - Louisiana Landings, September 1960, 2 pp.
CFS-2511 - Louisiana Landings, October 1960, 2 pp.
CFS-2512 - Texas Landings, November 1960, 3 pp.
CFS-2515 - Massachusetts Landings, November 1960, 6 pp.
CFS-2516 - North Carolina Landings, 1960 Annual Summary, 6 pp.
CFS-2518 - South Carolina Landings, 1960 Annual Summary, 4 pp.
CFS-2519 - Georgia Landings, 1960 Annual Summary, 4 pp.
CFS-2521 - North Carolina Landings, January 1961, 3 pp.
CFS-2522 - Fish Meal and Oil, January 1961, 2 pp.
CFS-2523 - Mississippi Landings, December 1960, 2 pp.
CFS-2524 - Georgia Landings, January 1961, 2 pp.
CFS-2525 - Maryland Landings, January 1961, 3 pp.
CFS-2526 - South Carolina Landings, January 1961, 2 pp.
CFS-2529 - Florida Landings, January 1961, 8 pp.
CFS-2537 - Rhode Island Landings, January 1961, 3 pp.

FL-507 - World Production and Trade in Fish Meal and Oil, by J. Adger Smyth, 94 pp., illus., March 1961. In 1959, the world market for fish meal suffered a decline in prices because of tremendously increased production in a number of countries. In many countries, stocks of fish meal, which could be sold only at a loss, have accumulated. Some reduction plants, even the entire reduction industry, have been forced to close as production costs have been too high for the fish meal to compete in world markets at the prevailing low prices. This report shows increases and decreases in production of fish meal and oil, especially during 1953-1959, the principal markets for the products, and the changes in supply sources in principal markets. The reduction industry, fish meal prices and costs, and foreign trade are discussed for each of 30 countries.

SSR-Fish. No. 363 - A Review of Literature on Menhaden with Special Reference to the Gulf of Mexico Menhaden, by Gordon Gunter and J. Y. Christmas, 35 pp., October 1960.

SSR-Fish. No. 365 - Study of Food Preference and Rate of Feeding of Japanese Oyster Drill, Ocinebra japonica (Dunker), by Kenneth K. Chew, 29 pp., illus., November 1960.

SSR-Fish. No. 367 - Scallop Resource of the United States Passamaquoddy Area, by Robert L. Dow and Frederick T. Baird, Jr., 13 pp., illus., December 1960. A survey of the scallop fishery in the Passamaquoddy Bay area of Maine was made as part of a larger investigation into the past, present, and future status of fish and shellfish species that might be affected by the construction of a proposed tidal power plant in that region. The past record of commercial production, and the present abundance level and environmental conditions are described, together with deductions as to the effects on the scallop fishery of predicted oceanographic changes.

SSR-Fish. No. 368 - A Morphometric Study of Silver Hake, by John T. Conover, Raymond L. Fritz, and Manuel Vieira, 15 pp., illus., processed, January 1961. Evidence is presented that the whiting or silver hake population along the Atlantic coast is comprised of two separate groups. One group inhabits the waters off the New England coast and the other is found off the southern New England, New York, and New Jersey coasts. Two characteristics, head length and pelvic fin length, gave consistent differences for separating these groups during two seasons of the year.

Sep. No. 616 - Experiments Utilizing Electrical Trawl Cables--A Progress Report.

Sep. No. 617 - Inhibition of Mold on Smoked Mullet.

Fisheries Loan Fund, Fiscal Year 1957, Fish and Wildlife Circular 103, 21 pp., processed. Reviews the credit facilities available to fishing vessel owners in the United States and gives data on the history,

administration, and status of the Fisheries Loan Fund. Also includes a reprint of the Fish and Wildlife Act of 1956, which also provided for the fisheries loan program; news releases issued when the fund was established; a copy of the order by the Secretary of the Interior establishing the loan procedures; and a copy of the application for loan.

THE FOLLOWING MARKET NEWS LEAFLETS ARE AVAILABLE FROM THE BRANCH OF MARKET NEWS, BUREAU OF COMMERCIAL FISHERIES, U. S. FISH AND WILDLIFE SERVICE, WASHINGTON 25, D. C.

Number Title

MNL-45 - Mexican Fishery Statistics, 1959.
MNL-46 - Wholesale Prices for Fishery Products Imported into Liberia.
MNL-47 - Salmon Exporters: Denmark and Greenland, 1961.

THE FOLLOWING TECHNICAL LEAFLETS ARE AVAILABLE FROM THE BRANCH OF TECHNOLOGY, BUREAU OF COMMERCIAL FISHERIES, U. S. FISH AND WILDLIFE SERVICE, WASHINGTON 25, D. C.

Menhaden Industry, by F. Bruce Sanford and Charles F. Lee, TL 31, 31 pp., illus., processed, January 1961. The purpose of this leaflet is to show the wide scope of the industry and the numerous complex operations involved in the manufacture of menhaden meal, oil, and condensed solubles. Photography is used as the most effective medium for presenting the industry. Also includes statistical tables giving data on availability of amino acids in menhaden meal; proximate composition and chemical content of menhaden meal; menhaden oil and certain constituents of the oil; and unsaturated fatty acids in menhaden oil.

The Relationships of Processing Variables and Chemical Composition to the Nutritive Value of Fish Meals as Determined by Broiler Feeding Tests, by T. D. Runnels and others, TL 21, 37 pp., processed, January 1961. Over 150 samples of fish meals with authentic processing histories were collected and tested to determine possible variations in nutritive value. The authors concluded that "As determined by practical broiler feeding tests in batteries, the nutritive value of commercially-produced samples of fish meal could not be related to species or parts of fish utilized for production, to proximate composition of the resultant meals, or to any variables of commercial processing. That the broiler-feeding test permitted differences to be determined in the nutritive quality of fish meals was demonstrated by the results obtained by feeding an obviously burned fish meal. When incorporated into diets, all meals tested, with the exception of the burned meal, permitted normal growth of broilers at economical rates of feed utilization. Since so few significant differences were obtained in such an extensive study, we can conclude that all fish meals of normal commercial production are a more reliable, more constant source of supplemental animal protein than has been thought previously."

U. S. Fish-Reduction Industry, by F. Bruce Sanford and Charles F. Lee, TL 14, 77 pp., processed, revised December 1960. This report is intended to give a broad view of the fish-reduction industry in the United States. It deals with four topics. The first three are concerned with harvesting the fish, manufacturing them into products, and then distributing the products to the consumer. The last is concerned with some of the problems encountered in starting a plant for the reduction of fish as a business venture. Included is a supplementary list of references.

THE FOLLOWING PUBLICATIONS ARE AVAILABLE ONLY FROM THE SPECIFIC OFFICE MENTIONED:

California Fishery Market News Monthly Summary, Part II--Fishing Information, February 1961, 13 pp., illus. (Bureau of Commercial Fisheries, Biological Laboratory, P. O. Box 6121, Pt. Loma Station, San Diego 6, Calif.) Includes monthly sea-surface temperature charts for the eastern Pacific, and fishing and research information of interest to the West Coast tuna fishing industry and marine scientists. The temperature charts cover that area of the Pacific from the Aleutians in the north to Peru and Chile in the south and offshore to 180° W. longitude. They show for each month the average sea-surface temperature and the deviations from the 30-year average and from the previous year. Research and fishing information indicates that the distribution of tunas and many other commercial species is directly affected by sea-surface temperatures.

(Chicago) Monthly Summary of Chicago's Fresh and Frozen Fishery Products Receipts and Wholesale Market Prices, February 1961, 13 pp. (Market News Service, U. S. Fish and Wildlife Service, 565 W. Washington St., Chicago 6, Ill.) Receipts at Chicago by species and by states and provinces for fresh- and salt-water fish and shellfish; and wholesale prices for fresh and frozen fishery products; for the month indicated.

Gulf Monthly Landings, Production, and Shipments of Fishery Products, February 1961, 8 pp. (Market News Service, U. S. Fish and Wildlife Service, 609-611 Federal Bldg., New Orleans 12, La.) Gulf States shrimp, oyster, finfish, and blue crab landings; crab meat production; LCL express shipments from New Orleans; wholesale prices of fish and shellfish on the New Orleans French Market; fishery imports at Port Isabel and Brownsville, Tex., from Mexico; and sponge sales; for the month indicated.

Monthly Summary of Fishery Products Production in Selected Areas of Virginia, North Carolina, and Maryland, February 1961, 4 pp. (Market News Service, U. S. Fish and Wildlife Service, 18 So. King St., Hampton, Va.) Fishery landings and production for the Virginia areas of Hampton Roads, Lower Northern Neck, and Eastern Shore; the Maryland areas of Crisfield, Cambridge, and Ocean City; and the North Carolina areas of Atlantic, Beaufort, and Morehead City; together with cumulative and comparative data; for the month indicated.

New England Fisheries--Monthly Summary, February 1961, 22 pp. (Market News Service, U. S. Fish and Wildlife Service, 10 Commonwealth Pier, Boston 10, Mass.) Reviews the principal New England fishery ports, and presents food fish landings by ports and species; industrial fish landings and ex-vessel prices; imports; cold-storage stocks of fishery products in New England warehouses; fishery landings and ex-vessel prices for ports in Massachusetts (Boston, Gloucester, New Bedford, Provincetown, and Woods Hole), Maine (Portland and Rockland), Rhode Island (Point Judith), and Connect-

icut (Stonington); frozen fishery products prices to primary wholesalers at Boston, Gloucester, and New Bedford; and landings and ex-vessel prices for fares landed at the Boston Fish Pier and sold through the New England Fish Exchange; for the month indicated.

New York City's Wholesale Fishery Trade--Monthly Summary for January 1961, 17 pp. (Market News Service, 155 John St., New York 38, N. Y.) Includes summaries and analyses of receipts and prices on wholesale Fulton Fish Market, imports entered at New York City, primary wholesaler prices for frozen products, and marketing trends; for the month indicated.

(Seattle) Washington, Oregon, and Alaska Receipts and Landings of Fishery Products for Selected Areas and Fisheries, Monthly Summary, February 1961, 7 pp. (Market News Service, U. S. Fish and Wildlife Service, Pier 42 South, Seattle 4, Wash.) Includes landings and local receipts, with ex-vessel and wholesale prices in some instances, as reported by Seattle and Astoria (Oreg.) wholesale dealers; also Northwest Pacific halibut landings; and Washington shrimp landings; for the month indicated.

THE FOLLOWING ENGLISH TRANSLATION OF FOREIGN LANGUAGE ARTICLE IS AVAILABLE ONLY FROM THE U. S. FISH AND WILDLIFE SERVICE, BUREAU OF COMMERCIAL FISHERIES, P. O. BOX 3830, HONOLULU, HAWAII.

Underwater Scientific Expeditions on the SEVERYANKA, by V. P. Zaitsev and V. G. Azhazha, 8 pp., processed. (Translated from Rybnoe Khoziaistvo, vol. 35, no. 7, July 1959, pp. 7-16.)

THE FOLLOWING ENGLISH TRANSLATIONS OF FOREIGN LANGUAGE ARTICLES ARE NOT FOR GENERAL DISTRIBUTION BUT ARE AVAILABLE FOR REFERENCE ONLY FROM THE U. S. FISH AND WILDLIFE SERVICE, BUREAU OF COMMERCIAL FISHERIES, P. O. BOX 3830, HONOLULU, HAWAII.

Larvae of the Black Marlin (EUMAKAIRA NIGRA Nakamura), by Shoji Ueyanagi and Hiroshi Yabe, 20 pp., processed. (Translated from Report of Nankai Regional Fisheries Research Laboratory, no. 10, 1959, pp. 151-169.)

On the Larvae of Sailfish, ISTIOPHORUS ORIENTALIS, Collected in the Southwestern Sea of Japan (in Waters Southwest of Japan), by Hiroshi Yabe, 13 pp., processed. (Translated from Contributions of the Nankai Regional Fisheries Research Laboratory, vol. 1, 1953.)

Larvae of the Striped Marlin, MAKAIRA MITSUKURII (Jordan et Snyder), by Shoji Ueyanagi, 20 pp., processed. (Translated from Report of Nankai Regional Fisheries Research Laboratory, No. 11, December 1959, pp. 130-146.)

THE FOLLOWING SERVICE PUBLICATIONS ARE FOR SALE AND ARE AVAILABLE ONLY FROM THE SUPERINTENDENT OF DOCUMENTS, WASHINGTON 25, D. C.

Development of Eggs and Larvae of Pacific Mackerel and Distribution and Abundance of Larvae 1952-56, by David Kramer, Fishery Bulletin 174 (from Fishery Bulletin of the Fish and Wildlife Service, vol. 60), 50 pp., illus., printed, 1960, 35 cents.

"Immersion Staining as a Method of Marking Small Salmon," by Loyal G. Bouchard and Chester R. Mattson, article, The Progressive Fish-Culturist, vol. 23, no. 1, January 1961, pp. 34-40, illus., processed.

"A Staining Method for Marking Large Numbers of Small Fish," by James E. Deacon, article, The Progressive Fish-Culturist, vol. 23, no. 1, January 1961, pp. 41-42, illus., processed.

"The Use of Saponin to Control Predaceous Fishes in Shrimp Ponds," by Yun-An Tang, article, The Progressive Fish-Culturist, vol. 23, no. 1, January 1961, pp. 43-45, processed.

MISCELLANEOUS PUBLICATIONS

THESE PUBLICATIONS ARE NOT AVAILABLE FROM THE FISH AND WILDLIFE SERVICE, BUT USUALLY MAY BE OBTAINED FROM THE ORGANIZATION ISSUING THEM. CORRESPONDENCE REGARDING PUBLICATIONS THAT FOLLOW SHOULD BE ADDRESSED TO THE RESPECTIVE ORGANIZATIONS OR PUBLISHER MENTIONED. DATA ON PRICES, IF READILY AVAILABLE, ARE SHOWN.

ADDITIVES:

"Additives and Frozen Seafoods," by H. Magnusson, article, Quick Frozen Foods, vol. 22, April 1960, p. 132, printed. Quick Frozen Foods, E. W. Williams Publishing, Inc., 82 Wall St., New York 5, N. Y.

AIRPLANE SPOTTING:

"Aviatsionnaia Navodka Sudov na Kosiaki sel'di" (Directing Fishing Vessels to Herring Schools with Aircraft), by V. Maslov, article, Rybnoe Khoziaistvo, vol. 34, no. 4, 1958, pp. 35-37, printed in Russian. Rybnoe Khoziastvo, VNIRO Glavniproekta, pri Glosplanie SSSR, Moscow, U.S.S.R.)

ANTIBIOTICS:

Antibiotics in Fish Preservation, by H. L. A. Tarr, 24 pp., illus., printed, 50 cents. Fisheries Research Board of Canada, Ottawa, Canada, 1961.

"Chlorine Affects Antibiotics," by C. H. Castell, article, Canadian Fisherman, vol. 47, no. 2, 1960, pp. 37-39, illus., printed. Canadian Fisherman, National Business Publications Ltd., Gardenvale, Quebec, Canada.

"Effect of Storage in Chlortetracycline (CTC)-Containing Refrigerated Sea Water on Keeping Quality of Mackerel and Determination of CTC Residue in the Fish," by T. Tomiyama and Y. Yone, article, Bulletin of the Japanese Society of Scientific Fisheries, vol. 25, no. 4, 1959, pp. 290-293, illus., printed in Japanese with English abstract. Japanese Society of Scientific Fisheries, c/o Tokyo University of Fisheries, Shiba-kaigandori, 6-chome, Minato-ku, Tokyo, Japan.

"Influencia de los Antibioticos Adicionados al Hielo en la Digestibilidad del Pescado" (Effect of Antibiotic Ice on the Digestibility of Fish), by A. Pujol and G. Varela, article, Anales de Bromatologia, vol. 11, no. 2, 1959, pp. 245-260, printed in Spanish with English summary. Sociedad Espanola de Bromatologia, Ciudad Universitaria, Madrid, Spain.

"Primenenie Hlortetraciklina Dlja Uvelicenija Prodolzitel'nosti Hranenija Ohlazdennogo Rybnogo File"

THESE PUBLICATIONS ARE NOT AVAILABLE FROM THE FISH AND WILDLIFE SERVICE, BUT USUALLY MAY BE OBTAINED FROM THE ORGANIZATION ISSUING THEM.

(The Application of Chlortetracycline in Extending the Storage Life of Chilled Fish), by F. Babin and T. Saharova, Kholodil'naia Tekhnika, vol. 4, 1960, pp. 35-37, illus., printed in Russian with English summary. Kholodil'naia Tekhnika, c/o Four Continent Book Corp., 822 Broadway, New York 3, N. Y.

BARENTS SEA:
"Rapport om Tokt med 'G. O. Sars' til Barentshavet i September 1960" (Report on a Survey of the G. O. Sars in the Barents Sea in September 1960), by Steinar Olsen, article, Fiskets Gang, vol. 46, no. 49, December 8, 1960, pp. 690-692, illus., printed in Norwegian. Fiskets Gang, Postgiro nr. 691 81, Bergen, Norway.

BIOCHEMISTRY:
"Muscle Biochemistry and Fish Flavours," by N. R. Jones, article, The New Scientist, vol. 7, no. 176, 1960, pp. 783-785, printed. The New Scientist, Cromwell House, Fulwood Place, High Holborn, London WC1, England.

BIVALVES:
The Intertidal Bivalves of British Columbia, by D. B. Quayle, Handbook No. 17, printed, 50 Canadian cents. British Columbia Provincial Museum, Department of Education, Victoria, Canada, 1961.

CANADA:
British Columbia Catch Statistics, 1960 (By Area and Type of Gear), 165 pp., illus., processed. Department of Fisheries of Canada, 1110 W. Georgia St., Vancouver 5, Canada, February 2, 1961. The tenth annual report of fish-catch statistics for British Columbia based on Departmental copies of sales slips that are completed by all commercial fish buyers operating within the Province. The report is divided into three sections: (1) summary of landings by district and total landed value of all fish; (2) highlights of catch statistics--a general review of significant events of salmon fishing in each area and general review for other types of fish; and (3) detailed district and area monthly statistics by type of gear. Certain economic, weather, and conservation factors that have a bearing on the catch are also reviewed.

Journal of the Fisheries Research Board of Canada, vol. 18, no. 1, January 1961, 145 pp., illus., printed. Queen's Printer and Controller of Stationery, Ottawa, Canada. Includes, among others, these articles: "Contribution to the Biology of Herring (Clupea harengus L.) in Newfoundland Waters," by Steinar Olsen; "A Method for Preparing Glycerin-Stored Otoliths for Age Determination," by G. H. Lawler and G. P. McRae; "The Quality of Fish Flour, Liver Meal, and Visceral Meal as Sources of Dietary Protein," by B. A. Larsen and W. W. Hawkins; "The Liquefaction of British Columbia Herring by Ensilage, Proteolytic Enzymes and Acid Hydrolysis," by J. R. McBride, D. R. Idler and R. A. MacLeod; "The Protein Nutritive Value of 'Liquid Herring' Preparations," by B. E. March and others; "Scale to Length Ratio, Age and Growth of Atlantic Salmon in Miramichi Fisheries," by Robert B. Kerr; "Slicing of Fillets as an Aid in Detection and Removal of Cod Worms from Atlantic Cod Fillets," by H. E. Power; "Northward Range Extension of the Flathead Chub and Trout-Perch to Aklavik, N. W. T.," by D. E. McAllister; and "Lipid Hydrolysis in Frozen Cod Muscle," by E. G. Bligh.

CLAMS:
The Maryland Soft Shell Clam Industry: Its Potentials and Problems, by J. H. Manning and H. T. Pfitzenmeyer, Contribution No. 145, 5 pp., illus., processed. (Reprinted from Proceedings of the National Shellfisheries Association, vol. 48, 1958, pp. 110-114.) Department of Research and Education, Chesapeake Biological Laboratory, Solomons, Md.

COD:
"Torskeundersokelsene i Lofoten og i Barentshavet, 1960" (Cod Research in Lofoten and the Barents Sea, 1960), by Arvid Hylen, Lars Midttun, and Gunnar Saetersdal, article, Fiskets Gang, vol. 47, no. 5, February 2, 1961, pp. 101-114, illus., printed in Norwegian with English summary. Fiskets Gang, Fiskeridirektoratet, Radstuplass 10, Bergen, Norway.

"Volatile Substances of Salted Codfish. Bacteriology of Salt Cod," article, Annual Report of the Fisheries Research Board of Canada, 1958-1959, pp. 139-140, printed. Fisheries Research Board of Canada, Ottawa, Canada.

COLD STORAGE:
"Bau und Einrichtung der Neuen Fischkuhlhauser in Polen" (Construction and Arrangement of the Latest Cold Stores for Fish in Poland), by T. Skwarczynski, article, Kaltetechnik, vol. 11, no. 7, July 1959, pp. 203-210, illus., printed in German. Kaltetechnik, Verlag C. F. Muller, Karlsruhe, Germany.

COLUMBIA RIVER:
An Economic and Social Glimpse of the Commercial Fisherman, 6 pp., illus., printed. Columbia River Fishermen's Protective Union, 322 10th St., Astoria, Oreg.

CRAYFISH:
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Forty-Fourth Annual Report of the United States Tariff Commission (Fiscal Year Ended June 30, 1960), House Document No. 26, 73 pp., printed. United States Tariff Commission, Washington, D.C., 1961. For the purposes of this report, the current work of the Tariff Commission--described in parts I, II, III, and IV--has been classified under the following headings: Public investigations; special reports and activities; furnishing technical information and assistance; and other activities. Part V of the report deals with the membership and staff of the Commission, and its finances and appropriations. As required by law, summaries of all reports made by the Commission during 1960 appear under the appropriate headings in parts I and II of this report. Among others, discusses the investigation by the Commission to determine whether shrimp was being imported into the United States in such increased quantities as to cause or threaten serious injury to the domestic shrimp industry.

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"Las Grandes Posibilidades de la Pesca de Tunidos" (The Great Possibilities in the Tuna Fishery), by Pierre de Latil, article, Industrias Pesqueras, vol. 35, no. 810, January 15, 1961, pp. 20-22, printed in Spanish. Industrias Pesqueras, Policarpo Sanz, 21-2, Vigo, Spain.

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"To Save the Green Turtle," by J. David Bowen, article, Americas, December 1960, pp. 14-17, illus., printed. Pan American Union, 19th St. and Constitution Ave., NW., Washington, D. C.

THESE PUBLICATIONS ARE NOT AVAILABLE FROM THE FISH AND WILDLIFE SERVICE, BUT USUALLY MAY BE OBTAINED FROM THE ORGANIZATION ISSUING THEM.

PERCH:
The Perches, by Frank J. Schwartz, Education Series No. 44, 4 pp., illus., printed. Department of Research and Education, Chesapeake Biological Laboratory, Solomons, Md.

PERU:
"L'Ascension Vertigineuse d'une Nation Pecheuse: Le Perou" (The Dizzy Rise of a Fishing Nation: Peru), by Robert Lenier, article, France Peche, vol. 6, no. 47, January 1961, pp. 13-15, 17-18, 44, illus., printed in French. France Peche, Tour Sud-Est, Rue de Guemene, Lorient, France.

PICKEREL:
The Pickerels, by Frank J. Schwartz, Education Series No. 47, 4 pp., illus., printed. Maryland Department of Research and Education, Chesapeake Biological Laboratory, Solomons, Md.

RADIATION:
A Selected List of References on Marine and Aquatic Radiobiology, compiled by A. W. Klement, Jr., and I. E. Wallen, TID-3903, 42 pp., processed, $1. Office of Technical Information, U. S. Atomic Energy Commission, Washington 25, D. C., May 20, 1960. (Office of Technical Services, Department of Commerce, Washington 25, D. C.)

"Microbiological Investigations--Radiation Preservation," article, Food Investigation 1958, pp. 13-16, printed. Her Majesty's Stationery Office, York House, Kingsway, London WC2, England, 1959.

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Sedimentation of Radioactive Wastes in the Sea, by Michael Waldichuk, Circular No. 59, 43 pp., illus., processed. Fisheries Research Board of Canada, Biological Station, Nanaimo, Canada, January 1961.

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"Un Grand 'Petit' Bateau" (A Great 'Little' Boat), article, France Peche, vol. 6, no. 47, January 1961, pp. 21-23, illus., printed in French. France Peche, Tour Sud-Est, Rue de Guemene, Lorient, France. Discusses the work of the U. S. Bureau of Commercial Fisheries' exploratory fishing vessel John N. Cobb since its maiden voyage in 1950.

SALMON:
"Salmon and Steelhead Management," by Monte Richards, article, Idaho Wildlife Review, vol. 13, no. 4, January-February 1961, pp. 3-5, illus., printed. Idaho Fish and Game Department, 518 Front St., Boise, Idaho. Salmon and steelhead management has developed in importance in Idaho in the past decade, when fishing pressures on these species have increased greatly. Basically, management is dependent on the gathering and analysis of data pertaining to several phases of the runs entering the State.

SARDINES:
"Essais Francais de Pre-Conservation de la Sardine sur les Bateaux de Peche, par Refrigeration en Eau de Mer a -1°C." (French Tests on the Pre-Storage of Sardine on Board Fishing Boats, by Cooling in Sea-Water at -1°C.), article, Revue de la Conserve, vol. 15, no. 3, May-June 1960, pp. 130-131, printed in French. Revue de la Conserve, 1 Rue de la Reale, Paris 1, France.

SCALLOPS:
"Florida Find Puts Scallop Fleet Back in Business," article, Business Week, no. 1643, February 25, 1961, pp. 142-144, 146, illus., printed. Business Week, McGraw-Hill Publishing Co., Inc., 330 W. 42nd St., New York 36, N. Y. Discusses the discovery of an immense bed of calico scallops off Cape Canaveral, Fla., by the U. S. Bureau of Commercial Fisheries' experimental trawler Silver Bay, and the possibilities of its commercial development. This bed has a potential production of 500,000 gallons of scallops a year and is located close to shore. With shucking machines, this fishery could become a very productive one within a few years.

SEAWEEDS:
A Existencia de Algas Agarofitas em Angola (The Existence of Agar-Bearing Seaweeds in Angola), by F. Palminha, Notas Mimeografadas do Centro de Biologia Piscatoria No. 16, 16 pp., illus., processed. Junta de Investigacoes do Ultramar, Lisbon, Portugal, 1961.

SHRIMP:
Industriel Udnyttelse af den Rode Dybhavsreje (Commercial Utilization of the Deep-Sea Red Shrimp, Pandalus borealis), by Poul Hansen, 18 pp., illus., printed in Danish with English summaries. Fiskeriministeriets Forsogslaboratorium, Copenhagen, Denmark, December 1960.

Notes on Postlarvae of Commercial Shrimp (PENAEUS) in South Carolina, by Charles M. Bearden, Contribution No. 33, 6 pp., illus., printed. Bears Bluff Laboratories, Wadmalaw Island, S. C., February 1961.

SMOKED FISH:
"Scientists' Advice on Care of Smoked Fish," article, Fish Selling, no. 66, 1959, p. 4, printed. Fish Selling, A. J. Heighway Publications Ltd., 110 Fleet St., London EC4, England.

SOUTH CAROLINA:
Annual Report, 1959-1960, Contribution No. 32, 11 pp., illus., printed. (Reprinted from Report of South Carolina Wildlife Resources Department, Fiscal Year July 1, 1959-June 30, 1960.) Bears Bluff Laboratories, Wadmalaw Island, S. C., January 1961. A detailed description of the activities of Bears Bluff Laboratories for the period under review, covering the study of oysters, shrimp, blue crabs, finfish, and pond cultivation.

SPAIN:
Investigacion Pesquera, no. 16, July 1960, 160 pp., illus., printed in Spanish. Instituto de Investigaciones Pesqueras, Universidad de Barcelona, Barcelona, Spain. Includes, among others, the following articles: "Consideraciones Acerca del Crecimiento de la Caballa (Scomber scombrus L.) en el Mediterraneo Espanol" (Information on the Growth of the Horse Mackerel (Scomber scombrus L.) in the Spanish Waters of the Mediterranean), by C. Bas; "Nota Sobre Algunas Especies de Algas de la Costa Occidental Africana--Sur de Cabo Blanco" (Note on Some Species of Algae on the West African Coast--South of Cabo Blanco), by J. Seoane-Camba; and "Dinamica de la Pesqueria de Sardina de Castellon. Datos de 1958" (Dynamics of the

THESE PUBLICATIONS ARE NOT AVAILABLE FROM THE FISH AND WILDLIFE SERVICE, BUT USUALLY MAY BE OBTAINED FROM THE ORGANIZATION ISSUING THEM.

UNDERWATER OBSERVATIONS:

Seven Miles Down: The Story of the Bathyscaph "Trieste," by Jacques Piccard and Robert S. Dietz, 249 pp., illus., printed, $5. G. P. Putnam's Sons, 210 Madison Ave., New York 22, N. Y., 1961. Story of the development of the bathyscaph and its 65 underwater explorations, told by the man who piloted it and the oceanographer associated with its history since 1955.

U.S.S.R.:

"Food in Russia: Russian Fish Research," by C. L. Cutting, article, Food Manufacture, vol. 35, no. 1, 1960, pp. 18, 22, illus., printed. Food Manufacture, Leonard Hill Ltd., 9 Eden St., London NW1, England.

WHALING:

"Australia's 1960 Whaling Season," by D. J. Gates, article, Fisheries Newsletter, vol. 20, no. 2, February 1961, pp. 13, 15, illus., printed. Commonwealth Director of Fisheries, Department of Primary Industry, Canberra, Australia. A summary of the volume and value of the baleen and sperm whale catch; number of catcher vessels operating from shore stations; oil and byproducts yield; length, sex, and maturity of whales caught; and the Antarctic catch. Includes statistical tables and graphs showing landings of humpback and sperm whales, 1951-1960; production of oil and byproducts per whale; and Australian humpback whales, 1956-1960.

International Whaling Statistics, XLII, 53 pp., printed, kr. 2.00 (about 28 U. S. cents). The Committee for Whaling Statistics, Oslo, Norway, 1959. Presents the results of the Antarctic whaling during the season 1957/58. Six countries--Norway, United Kingdom, Japan, Netherlands, U.S.S.R., and Argentina--participated with 20 floating factories, 2 shore stations, and 257 catchers. These countries under the International Whaling Convention agreed to maintain the maximum quota of 14,500 blue-whale units for the season 1957/58.

YELLOWTAIL:

A Study of the Yellowtail SERIOLA DORSALIS (Gill), by John L. Baxter, Fish Bulletin No. 110, 96 pp., illus., printed. California State Fisheries Laboratory, Terminal Island, Calif., 1960. The present economic range of yellowtail is from Los Angeles County, Calif., to Cape San Lucas, Baja, California. The principal objectives of the present study were to determine the geographic origin of the yellowtail appearing each year in the areas fished by California-based anglers; the effects of fishing on the population; and life history information on which to base wise management practices. The material for life history studies was obtained throughout the year from three principal sources--fish sampled at the canneries, specimens saved in conjunction with tagging operations, and catches made by anglers on party fishing vessels.

YUGOSLAVIA:

Stocarstvo i Ribarstvo, 1959 (Stock Breeding and Fisheries, 1959), Statistical Bulletin 182, 36 pp., illus., printed in Serbo-Croatian with 22-page English supplement. Section on fisheries covers salt- and fresh-water fisheries, total catch of fish, landings of salt-water fish by fishing enterprises and cooperatives, landings of salt- and fresh-water fish by species and by months, and other data.

FISHERY MARKET NEWS SERVICE OFFICES		
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AMERICAN INSTITUTE OF BIOLOGICAL SCIENCES TRANSLATION PROGRAM

The American Institute of Biological Sciences (AIBS) is currently translating and publishing seven Russian research journals in biology. These journals are translated with support from the National Science Foundation, which is eager that such information be more widely distributed to biologists throughout the world. It is hoped that this material will aid biologists in research, prevent duplication of work, give some idea of the work being done by Soviet scientists in the field of biology, and also bring about a better international understanding among scientists.

Because of the support of the National Science Foundation, the AIBS can offer these translations at a fraction of their publication cost, with even further price reduction to AIBS members and to academic and non-profit libraries. This reduction, the AIBS feels, places the translation within the reach of all biologists.

The journals currently being translated are: Doklady: Biological Sciences Section; Doklady: Botanical Sciences Section; Doklady: Biochemistry Section; Plant Physiology; Microbiology; Soviet Soil Science; and Entomological Review.

In addition to its program of Russian Biological Journal translations, the AIBS has instituted a separate program of translation and publication of selected Russian monographs in biology.

It was felt that the program of Journal translations was not sufficient to cover all of the significant work being done in all fields of biology by Russian Scientists. With the aid of competent authorities, the AIBS has translated and published six Russian monographs and one monograph is in the process of being published. In addition, several prominent monographs in various biological areas are being considered by the AIBS and the National Science Foundation for translation and publication. The monographs that have been published are: "Origins of Anglospermous Plants," by A. L. Takhtajan; "Problems in the Classification of Antagonists of Actinomycetes," by G. F. Gauze; "Marine Biology," Trudi Institute of Oceanology, Vol. XX, edited by B. N. Nikitin; "Arachnoidea," by A. A. Zakhavatkin, and "Arachnida" by B. I. Pomerantzev. The manuscript for "Plants and X-rays," by L. P. Breaslavets is in the final stages of preparation and should be published early in 1960.

Additional information pertaining to this program may be obtained by writing to the American Institute of Biological Sciences, 2000 P Street, NW., Washington 6, D. C.

FREEZE-DRYING OF FOODS

Chicken and mushrooms are now being freeze-dried--first frozen, then dehydrated--and put into soup mixes. Some freeze-dried foods, after reconstitution with water, are said to be more tender and less shrunken than foods prepared by conventional drying techniques. Freeze-drying is not a new process, and it is a relatively expensive technique. It is of considerable interest to the food industry, however, because it offers the possibility of dehydrating products which can then be stored at or near room temperature, so that costs of refrigerated storage and transportation could be substantially reduced.

As the first step in freeze-drying, foods are either fast frozen or slow frozen. Slow freezing induces the growth of large ice crystals which rupture fibers or cell walls, and in some cases the reconstituted product will tend to be tough. In other cases very fast freezing is chosen deliberately as a method of tenderizing. Still other foods may be either fast frozen or slow frozen with no perceptible difference in final product characteristics. As the second step, the frozen food is put into a vacuum chamber and heated. Under the circumstances, the ice sublimes--i.e., vaporizes without passing through the melting stage. The final product is a sponge-like but rigid mass; when water is added, it will reconstitute to near the original texture, flavor, and color. Reconstitution takes 5 to 15 minutes or longer. For most economical operation, food products must be heated as rapidly as the food will stand, but emitted vapors must be removed as fast as they are driven out; otherwise, localized melting will occur, and the final product may include tough or otherwise damaged spots. Thus, the vacuum system must be matched with the heating system. But the heating process is gradual; the most important limitation on present-day freeze-drying techniques is that they take too long.

One current method is to lay out frozen foods on shelves that are continuously heated by circulating liquids during the drying stage, or electrical heating coils or infrared lamps can be used. Another system involves placing the foodstuffs to be dried on aluminum plates that are placed between, but not touching, blackened radiant heating shelves. In either case, the rate of drying is determined by the nature and thickness of the food itself, and the rate of heat transfer into it. The rate of heat transfer into the dried food, however, is reduced as its outer surface loses its ice content through sublimation. It may take 10 to 12 hours for thorough freeze-drying of a half-inch-thick food sample.

Considerable developmental effort has therefore been devoted to ways of speeding up the drying process while still retaining control of both heating and product quality. Heating trays can be provided with spikes, for example, to achieve more rapid heat distribution through the food. Heating with microwaves has also been tried. Still, drying times are long, and freeze-drying remains uneconomical for relatively low-cost foods. Most of the research work conducted so far has been stimulated by the Quartermaster Food and Container Institute, for military rations. A number of completely precooked, dehydrated meals have already been made available; 10 to 15 minutes after addition of hot water, they are ready to eat. These complete meals, are combinations of freeze-dried and conventionally-dried components; their cost is justified in terms of the logistics of using them.

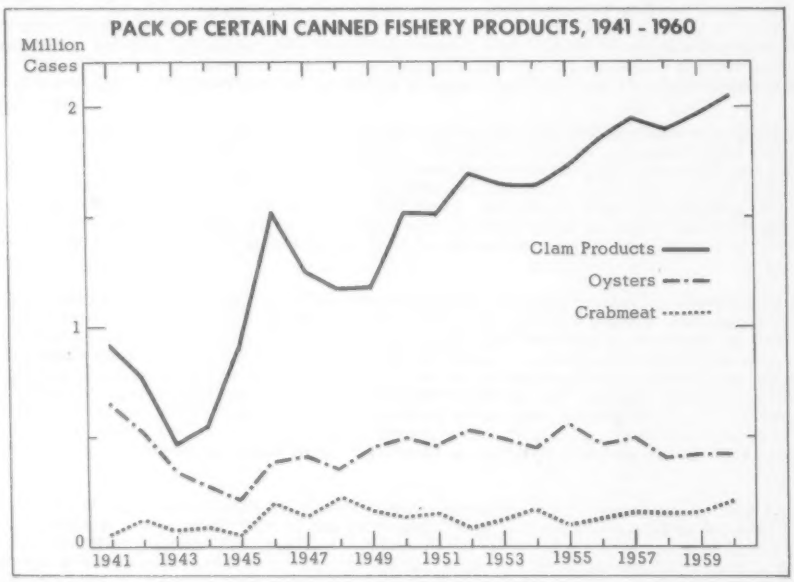
A number of pharmaceuticals have been freeze-dried for some years, but in this case, processing expenses are a small part of the total cost. The same criterion holds for freeze-drying foods; if processing costs are small in relation to the total cost, the process could be justified. Yet, process economics have to be worked out for each new product; the first ones to appear on the market may be "instant" or "convenience" foods, or delicatessen products. Probably more important in the near future will be the development of new concepts of convenience foods; for this and other reasons, freeze-drying continues to hold the interest of the food industry. (Industrial Bulletin, Arthur D. Little, Inc., January 1961.)

CANNED FISH AND BYPRODUCTS, 1960

C.F.S. No. 2541, Canned Fish and Byproducts - 1960. The total pack of canned fishery products by 364 plants in the United States including American Samoa and Puerto Rico during 1960 amounted to 35 million cases (1,092 million pounds), valued at 383 million dollars. Compared with the previous year, this was an increase of over 3 million cases (117 million pounds) and $35 million. There was an increase in both the pack for human consumption and for animal food. Significant gains in the pack of animal food, tuna, salmon, and mackerel were primarily responsible for the over-all increase in 1960. The value of three items--canned tuna, salmon, and animal food--accounted for 79 percent of the total revenue received by canners of fishery products.

The 1960 pack of tuna amounted to 15.3 million cases, a new record. The pack was up 7 percent in volume and 8 percent in value compared with the previous year.

The 1960 pack of salmon amounted to 2.9 million cases valued at $84.7 million. This represents an increase of 18 percent in both volume and value. The increase in the Bristol Bay run of red salmon contributed chiefly to the increase. Failure of the runs elsewhere continued to plague the industry.



The 1960 production of fish meal and scrap amounted to 290,000 tons valued at $25 million to the producers. Compared with the record 307,000 tons valued at $36 million produced during 1959, this was a decline of 17,000 tons and $11 million. Production of fish solubles and homogenized-condensed fish (99,000 tons) was down 66,000 tons (40 percent) from the 1959 production of 165,000 tons. Some plants added solubles to their meal in order to dispose of them.

Copies of C.F.S. No. 2541, are available free from the Division of Information, U.S. Fish and Wildlife Service, Washington 25, D. C.